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# Railway Age

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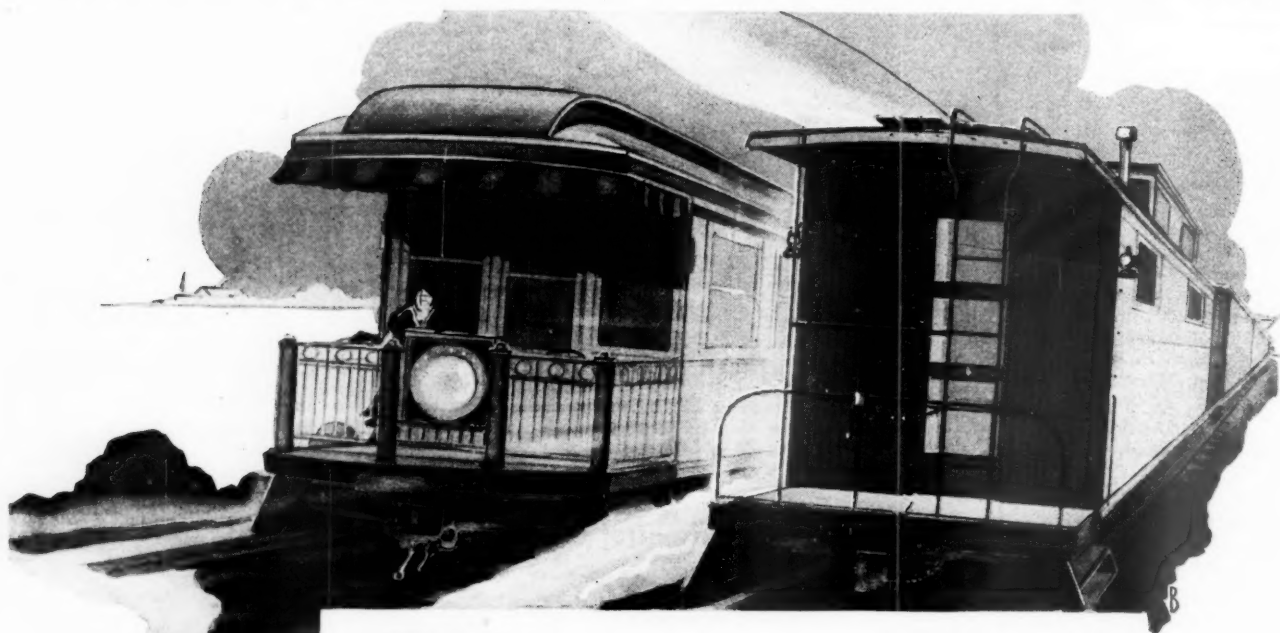
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*The Railway Age is indexed by the Industrial Arts Index and also by the  
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## On Observation Car or on Caboose



**O**N observation car or on caboose it's car mile *cost* that counts. Economies obtained with "Diamond-S" Brake Shoes on the passenger equipment of principal railroads of the United States and Canada has brought about a growing tendency to use these shoes on freight equipment also.

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## RAILWAY AGE

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# Responses to the "Call for Volunteers"

The *Railway Age* published on the front cover of its issue of January 23 an article entitled "The Railroad Problem—A Call for Volunteers". Many responses have been received that show two things. One is, that men holding positions of every kind, high and low, in the railroad industry and the railway equipment and supply industry fully realize the necessity for more action by all connected with these industries to restore their prosperity. The second is, that many who are willing to volunteer do not know what they can do. The following statements made by a man who represents several large manufacturers are typical: "There is no trouble getting the volunteers but they must be properly officered. Their efforts must be directed along proper lines and towards certain objectives. \* \* \* There is hardly any limit to what well directed and concerted action could accomplish, but there must be a leader. \* \* \* The situation is serious, but we are beginning to see daylight, and if these volunteers can be marshalled and provided with proper leadership, told what to do and how best to do it, and will get busy without delay, my humble opinion is that we will be surprised at what can be accomplished."

What are the causes of the present bad conditions in the railway and the railway equipment and supply manufacturing industries? First, the depression, and the resulting great declines of railway traffic and earnings. Second, restrictive and unfair regulation by the Interstate Commerce Commission, resulting in too small railway earnings during the years of prosperity and helping to destroy railway earning capacity during the depression. Third, losses of traffic to subsidized and unregulated competing carriers on waterways and highways.

The first thing essential to reviving every business in the country is to end the depression by removing its causes. Every citizen can do something to end it, and every patriotic citizen will do something.

### Help End the Depression

When the depression began two years ago there was a general conspiracy to make it as long and deep as possible. It was not recognized at the time that there was such a conspiracy, but it has been only too successful. The conditions demanded numerous important economic readjustments, which almost everybody

from Washington to Podunk united to prevent, joining in a chorus of Pollyanna to convince themselves that the conditions requiring readjustments did not exist. Economic forces are more powerful than Pollyanna. They are more powerful even than Pollyanna plus the government masquerading as Santa Claus. At last almost the entire nation has awakened to a realization that conditions inimical to business must be changed to restore confidence, not merely ignored. Real leadership is effecting needed readjustments so long and harmfully resisted. Real leadership is getting needed reductions of wages in the railroad and other industries. Real leadership is causing adoption of constructive measures to relieve the national credit crisis produced by previous unsuccessful efforts to resist economic forces. Real leadership is assailing from one end of the country to the other the reckless increases in government expenditures and taxation, which probably have been more responsible for the length and depth of the depression than any other cause.

What can *every* citizen do to help in this crisis? For one thing, he can recognize that every person who, under existing conditions, takes money from banks and puts it in a safety deposit box or an old sock is running away in the face of the enemy. Nobody needs to hoard for safety, because there are many safe banks in which money can be deposited, and those too timid to trust any bank can securely invest it in government bonds. Those who hoard now are deserting as truly as any soldier who ever decamped the night before a battle. Hoarding has reduced the credit available for business in this country probably \$12,000,000,000, and the credit normally available must be restored before business can revive. Until the traffic and earnings of the railways are increased by improvements in general business their expenditures for labor, equipment and materials cannot be largely increased.

It is conditions that we feel, but tendencies are much more important. All the important tendencies in business are now improving, and in the long run tendencies determine conditions. Help those who are now improving tendencies, and you will help improve the conditions to which you and all others are subject. Fail to help them, or contribute toward nullifying their efforts, and you will postpone the day when



you can get employment or make better wages and profits.

### **Are You Dependent Upon the Railways?**

Do the railroads afford a market for part or all of your products? Do you travel by bus, or ship by truck or water, when you could travel or ship by rail? If you must answer these questions affirmatively, you are obviously reducing the market for your own products. If you are an employee of a railroad or a railway supply manufacturing company are you using all your influence to get your friends and neighbors to travel and ship by rail? If not, you are not doing what you can to get your job back or even hold your present job. If you are a railroad employee, do you treat the passengers and shippers of your railway as you like to be treated? If not, you are doing what you can to drive traffic from your railway and deprive yourself of your job. Directly and indirectly earnings are the only things that railways can use to employ labor and make purchases, and if they do not have traffic they cannot make earnings.

For more than twenty-five years the railways have been subject to effective federal regulation. After the depression passes and traffic increases they will still be subject to such regulation. What that regulation will be will be determined by Congress and the Interstate Commerce Commission. Congress is now considering important new railway legislation. It passed new railway legislation twelve years ago, in the form of the Transportation act, and it has done no permanent good because the Interstate Commerce Commission has persistently refused to regulate in accordance with that act. The commission will regulate in the same way in future unless effective pressure is applied to cause it to regulate differently.

### **Organized Action Required**

Almost throughout the twelve years since the Transportation act was passed the railways have been appealing to the courts, and numerous persons have been making speeches and writing articles criticising the commission, upon the ground that it has not been carrying out the Transportation act. It is largely because that act has never been carried out that present conditions in the railroad industry and railway equipment and supply manufacturing industry exist. If you are a railroad officer, or a railroad equipment or supply manufacturer, or an employee of a railroad or of such a manufacturer, your business or your job has constantly been imperiled by the kind of regulation applied to the railways. Many have spent their brains and money in trying to get regulation improved. Have you? If not, what right have you to complain about the results? If you did nothing to get regulation improved in the past are you doing anything now for that purpose or do you intend to do anything in future? If not, do you expect others to do it for you, and if so, why?

The correspondent quoted above says that organized

action under competent leadership is needed; and he is right. Present conditions are sufficient to prove that there has not been enough of such action and leadership. They have been, and still are, the principal needs of the railroad industry. There are plenty of leaders in the railroad industry. The trouble is that they usually lead in so many different directions. Some persons say the railroads will not fight. They are wrong. The railroads will fight—each other. The tradition of competition between them is so strong that they constantly fight each other, and, having thus contributed toward their own ruin, lack the cohesion and strength required effectively to resist the unfair regulation and unfair outside competition that so gladly help them to ruin themselves. The railroads need to unite vigorously to resist the traffic pressure of big shippers, unfair regulation and unfair outside competition; and they need the help of every railway labor leader and employee in resisting these influences. Too much of the present railway situation is due to "inside jobs". The officers and privates of an army who fight among themselves are never likely to be very terrifying to the enemy.

The owners, officers and employees of railway equipment and supply manufacturing companies are vitally interested in the welfare of the railroads. The Railway Business Association has done much to help its members and the railroads, but, like the railroads themselves, it has not done enough. The membership of this organization should be increased to include everybody to whom the railroads afford a considerable market. Its officers, and its members and their employees, should follow every development affecting the railways, and strongly resist all unfavorable developments. The railways afford a market for business concerns in every state and in very many congressional districts, and the officers and employees of these concerns could exert much more influence in behalf of fair regulation upon their senators and congressmen. Officers and employees of these concerns belong to innumerable chambers of commerce and service clubs. Why should they sit idly by while agricultural organizations, or commercial organizations to which they belong, promote action by state legislatures, Congress and the Interstate Commerce Commission to ruin the railroad business and thereby to ruin the business of those for whom the railroads afford a market? One railway supply man who volunteered in reply to our recent "call" immediately wrote a letter to his local newspaper emphatically refuting certain misrepresentations of railways that had just appeared in it. How many railway men or railway supply men have ever done this? Only the man who will defend his bread and butter deserves it.

Railway earnings directly and indirectly afford the bread and butter of at least three million families in this country whose breadwinners, under normal conditions, are employed by railways and by railway equipment and supply manufacturers. If all the adult members of those families would constantly fight the



senators, congressmen, members of legislatures, commercial organizations and subsidized carriers by highway and waterway that are trying to ruin the railroads there would never be a recurrence of present conditions in the railway and the railway supply manufacturing industries.

The railroad problem is not an ordinary business problem. It is a problem of both government and business. The railroad industry, and, in consequence, the railway supply manufacturing industry, have been reduced to their recent plight largely by government repression of and discrimination against the railroads. Every citizen can help improve the conditions in these industries by exerting his influence to improve government treatment of the railways. Those citizens who are directly and indirectly dependent upon the railroads are a minority; but this country is ruled by organized minorities; and when the minority whose prosperity is dependent upon the prosperity of the railroads becomes as highly organized and vocal as are numerous smaller minorities that are trying to ruin the railroads it will get results.

## Specific Proposals for Motor Transport Control

Two noteworthy contributions to better understanding of the problems involved in motor transport taxation and regulation have recently made their appearance. One is the report of the New York State Commission for the Revision of the State Tax Laws, and the other is a definitive outline of the fundamentals of an all-round system of motor transport regulation set forth in an address by J. J. Pelley, president of the New York, New Haven & Hartford, and published in abstract elsewhere in this issue. The caliber of the New York commission on tax revision, which is not a partisan body, may be judged by the fact that its membership includes, among other distinguished citizens, Professor Edwin R. A. Seligman, who is perhaps the nation's foremost authority on taxation. Its report, which is known as Legislative Document (1932) No. 62, is available in pamphlet form from the State Printer at Albany and commends itself to the attention of serious students of taxation and, in particular, to those interested in securing more equitable payments for commercial use of the highways.

The commission was directed to find means of distributing the tax burden more evenly with the view of relieving real estate of its present disproportionate share of the public expense—a situation which is not peculiar to New York by any means. It should not be difficult, therefore, to arouse the interest of over-taxed real estate owners the country over in the commission's recommendations which are designed for their relief. This large and oppressed class should welcome the pointing out to them of other legitimate

sources of revenue which in fairness should be called upon to make larger contributions to the end that farm and home ownership may no longer be so gravely penalized. A fuller understanding of the specific problems which the commission faced is available in a recent study of New York tax problems issued by the National Industrial Conference board.

New York's taxation of commercial motor vehicles is notoriously low—especially so by comparison with that of private automobiles. The commission, while not proposing important changes in the license charges for private automobiles, recommends a radical revision in the basis of motor vehicle taxation, varying according to gross weight, the rates increasing progressively from 40 cents per hundred pounds for the first two tons up to as high as \$4.40 per hundred for weights in excess of 13 tons, and with double rates for solid-tired vehicles. In addition carriers for hire would be charged special license and franchise fees, on the theory that such operators use the highways more intensively than private owners.

One-half the proceeds of the license and gasoline taxes and all the special fees exacted from carriers for hire the commission proposes to return to the local communities in which the vehicles operate, thus in great measure answering the objection to taxing intra-city vehicles to meet the costs of rural roads which they do not use. The intra-city bus and truck operators, however, are still opposed to the measure and railroad interests can well afford to give careful consideration to this point of view. Motor transport is economically supreme for short distances and in local areas and neither it nor the general taxpayers should be unjustly burdened to provide facilities for the uneconomic long-distance operations. It is to be hoped that a compromise may be arrived at which will reconcile the recommendations of the tax commission with justice to the intra-city operators. It may be noted, however, that operators of intra-city truck fleets would not be penalized if their real estate taxes were reduced to offset the heavier motor vehicle license fees. Meantime, however, the general plan of highway taxation expounded by the New York commission will stand as a distinct step toward the solution of the problem.

If the New York commission has given definite and logical answers—and it has—to some of the perplexing problems of highway taxation, Mr. Pelley has been no less thorough and pointed in his discussion of regulation.

Advocates of commercial motor transport regulation are many in number, but there are few of them who have troubled to think the problem through to a logical statement of their aims in detail. Mr. Pelley, on the other hand, leaves no doubts regarding the meaning of and reasons for his proposals. Their significance is enhanced also by the broad experience of their proponent, not only in railroad transportation, but in water and motor transport as well. His outline should do much to give definiteness to plans for the equitable regulation of all forms of transport.

## Inactive Material Increases

The railroads, like other businesses, are supposed to be purchasing literally from hand to mouth, and the shelves and counters are supposed to have been stripped of all but bare necessities. Facts regarding railway inventories however, indicate that the volume of obsolete and other inactive material has increased, both in the relation it bears to other stock and in total book value. Some storekeepers frankly admit that they do not know how much of this material they have, but increases are quite general. It has increased from \$300,000 to \$550,000 on one road since January, 1930, not counting materials held for A. F. E. work, and is estimated to represent well over 5 per cent of railway inventories at the present time. This means that Class I railroads are carrying at least \$25,000,000 of materials which are of little or no value except as scrap, or unless used on the property in some other form, or as substitutes for other material. Some of this material is a year old; some of it is more than five years old; some of it is over ten years old notwithstanding strenuous efforts made in the last decade to reduce the volume of unapplied material.

Several causes are assigned for the increase of relatively useless material on the railroads. The reduction of storehouse forces is one. Another is that old power for which some supplies are held has been idle.

The increase in inactive parts also arises from the fact that unapplied stocks often include the full value of equipment waiting to be dismantled. Under what principle the stock balance is burdened with the full value of such material on some roads is not known, but the book value of it amounts to several hundred thousand dollars in individual instances. In addition to equipment awaiting dismantling, inventories of some roads have been enlarged during the year with accumulations of scrap iron which it has been customary to gather up and sell each month, but which some roads decided to hold for better prices. Book values in excess of a million dollars have been carried in the materials and supplies account by individual roads for equipment awaiting dismantling and unsold scrap.

The increase in inactive material, however, is principally attributed to the reluctance of roads to write off the loss at this time, because the difference between the book value and the scrap value of the material must be charged to operating expenses. "I do not think", one supply officer states, "that any railroad is anxious to disclose just what it has on its books in the nature of obsolete or slow-moving material at this time. Operating officers are not anxious to have any of these items charged against operating expenses as long as the present conditions prevail."

The railway storekeeper has often been compared with a merchant. The accumulation of dead stock is a common experience to both. As quickly as the successful merchant discovers this stock, however, he

proceeds to convert it into cash. Selling even below cost is preferred to frozen assets, because it stops the accumulation of charges on the dead stock, improves credit and otherwise keeps the business solvent.

The railway storekeeper's success in relieving his books of dead stock, however, depends upon business conditions. If business is good, he is allowed to charge off the dead stock to operating expenses. If business is bad, the dead stock accumulates, because it is unpopular to urge operating departments to absorb the charges. The result is that the book value of stock is inflated, and added interest charges and other hidden cuts accumulate.

The growing tendency appears to support the opinion that any railroad should know from day to day the exact amount of money tied up in dead stock and should be uniformly diligent in disposing of it by sale or other disposition. If all dead stock on the books of railway stores departments at the present time were sold, it is estimated that this stock would produce several million dollars cash, even though the scrap prices are lower than they have been for years. Holding this stock for better times only increases the cost. By diligently disposing of the material, an expanding liability can be converted into a true asset, and frozen assets converted into cash that could be used to buy new material.

## Railway Taxes and Income

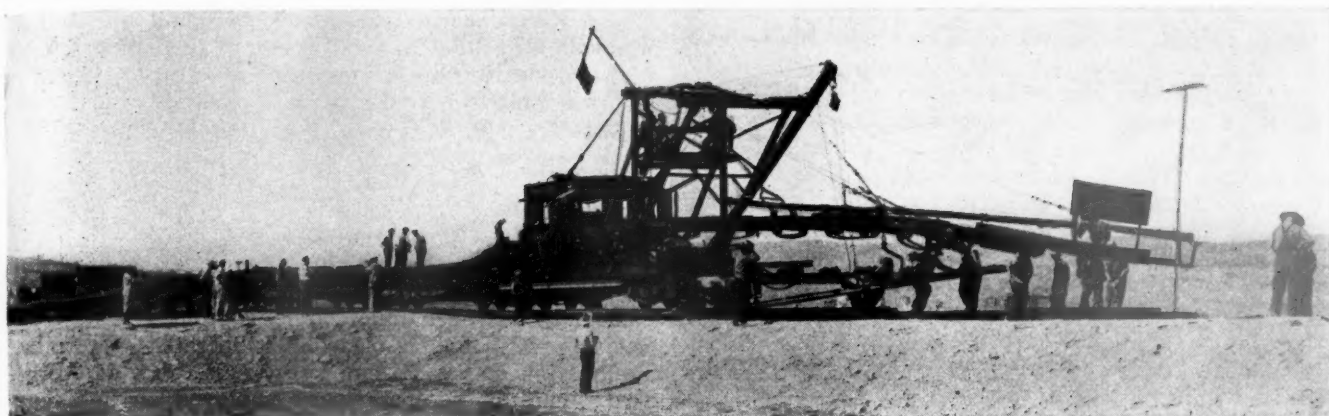
Figures of railway earnings in 1931, just made public, disclose the fact that the railways set at least one new financial record in that year: a record which, it is to be hoped, will never be approached again. In 1931, for every dollar of net income earned for the stockholders of the railways the carriers paid \$3.46 to federal, state and local tax collectors.

Net income of the railways in 1931 was approximately \$89,000,000, while railway tax accruals amounted to about \$308,000,000. As far back as the recorded statistical history of the railroads is available, 1931 was the first year in which taxes exceeded net income available for dividends.

The 1931 figure of net income, amounting to \$89,000,000, was the lowest for any year since 1897, when the total was approximately \$86,000,000. Taxes in that year were \$41,000,000, so, in 1931 as compared with 1897, net income increased \$3,000,000, or less than four per cent, while taxes increased \$267,000,000, or 650 per cent.

For every dollar of net income in 1897 the railways paid about 48 cents in taxes. In 1931, as shown, for every dollar of net income the railways paid almost 3½ dollars in taxes. While the railways are perhaps more vitally affected than industry in general, these comparative tax figures are a striking illustration of the burden of the excessive costs of government. A reduction in this burden is essential.





The Pioneer Track-Laying Machine Developed by the Contractor for the Work on this Project

# The Great Northern in California

Extension to connect with Western Pacific at  
Bieber gave rise to unusual problems

THE *Railway Age* of November 14, 1931, presented an account of the ceremonies at Bieber, Cal., on the occasion of the completion of a construction project of unusual strategic significance. It was at Bieber that a line extended 92 miles southward from Klamath Falls, Ore., by the Great Northern, was brought to a connection with a 112-mile line built northward by the Western Pacific from its Feather River Canyon line at Keddle, Cal. Thus, the joining of the rails at Bieber, together with the establishment of through traffic arrangements between the two railways has opened a new through route between San Francisco and the Pacific Northwest and—via the Northern roads and their subsidiaries—between central and northern California and the Middle West.

This important piece of construction, represents the fulfillment of a dream cherished by the late James J. Hill to the time of his death in 1916. The first step in the direction of this objective was the completion of the Spokane, Portland & Seattle, from Spokane to Portland in 1908, followed in 1911 by the construction of the Oregon Trunk from Wishram, Wash., on the Columbia river, to Bend, in central Oregon, a distance of 151 miles. Unsettled conditions, followed by the World War, resulted in the postponement of further activity until 17 years later, when the Great Northern effected an agreement with the Southern Pacific for trackage rights over 74 miles of its recently completed Natron cut-off from Chemult, Ore. to Klamath Falls. The gap of 70 miles between Bend and Chemult was closed by the acquisition of 24 miles of the Shevlin-Hixon logging railroad extending south from Bend and the construction of 46 miles of new line. When the Great Northern ran its first train into Klamath Falls on May 10, 1928, it had extended its line 295 miles south from the Columbia river to within 15 miles of the California state line.

It was still necessary, however, to extend the rails across 204 miles of Northern California's plateau before the objective, that of a connection with the Western Pacific, would be attained. On February 14, 1929,

the two railways filed an application with the Interstate Commerce Commission for authority to proceed with the construction of a line from Klamath Falls to Keddle, the former to extend its line southward to Bieber and the latter to build a line between that point and Keddle. Following is an account of the Great Northern's portion of this project; a description of the Western Pacific line will appear in a later issue.

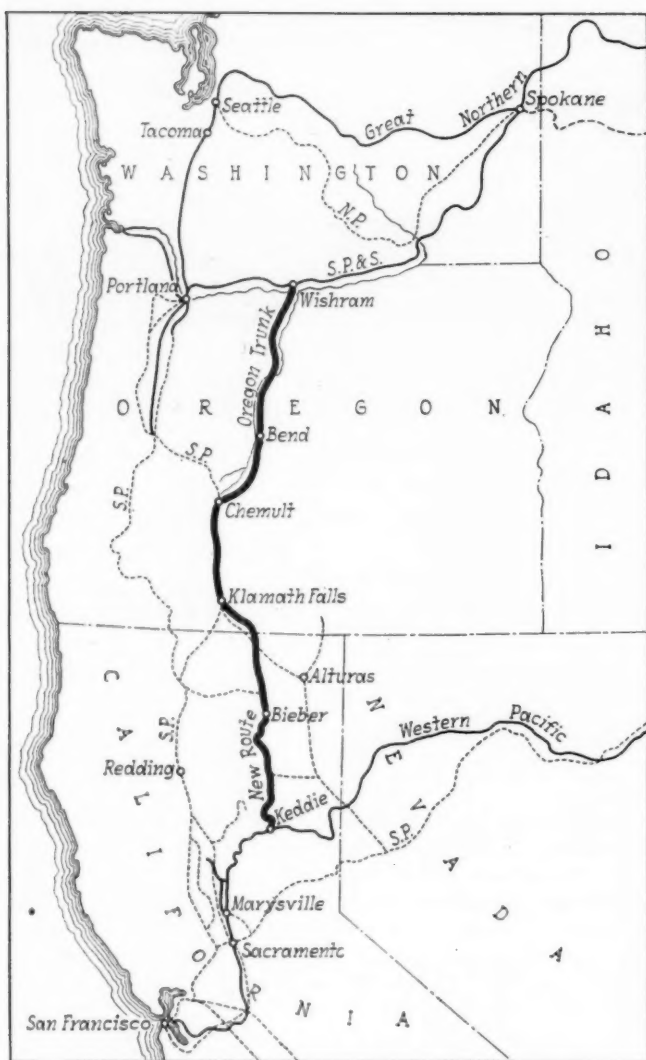
## Klamath Falls to Bieber

It is an odd coincidence that the location of the Great Northern's line from Bieber to the Columbia river follows the general route of the earliest exploration for a railway line from California to the Pacific Northwest, namely the reconnaissance survey made by Lieutenants R. S. Williamson and Henry L. Abbott in 1855 from Fort Redding, Cal. to Fort Dalles, Ore. That these army engineers had ample reason for crossing to the east side of the Sierra Nevada mountains before proceeding to the north, has been demonstrated by the location developed by the Great Northern between Bieber and Bend, and particularly between Bieber and Klamath Falls.

With Klamath Falls at Elevation 4,095 and Bieber at Elevation 4,115, there is a difference of only 21 ft. in the elevation of the two ends of the line, while the highest point is at Elevation 4,395 and the lowest point is above the 4,000-ft. contour. The line is one of easy curves and grades. In the 92 miles, after leaving the connection at Klamath Falls, there are only 22 curves, of which 2 are 2-deg. curves and the balance 1-deg. curves, embracing a total curve distance of less than  $7\frac{3}{4}$  miles. There is an aggregate of about two miles of 0.8 per cent grade northbound and a trifle less of 0.8 per cent southbound. As a whole, grades are 0.3 per cent or less. The grading averaged only 22,000 cu. yd. per mile.

Leaving Klamath Falls, the new line extends in a southeasterly direction for 25 miles to the state line where it turns to the south and, for another 14 miles,





Map of the New Route from San Francisco to the Pacific Northwest

lies in the dry bed of what was Tule lake until it was drained a few years ago as part of a reclamation project. In this stretch the line crosses a number of irrigation ditches by means of corrugated metal and concrete pipe culverts, and for  $2\frac{1}{2}$  miles the embankment serves as a dike for the "sump" or undrained area of the old lake.

#### Distinctly Different Formations

South of the Tule Lake bed, through the Modoc national forest, the formation is lava rock with a heavy overburden of clay soil. Cinder cones, rising like small mountains above the general level, furnished material for ballast and borrow. The last 28 miles of the located line in the national forest and "Big Valley" traverses a heavy growth of merchantable yellow pine.

In addition to the connection at Klamath Falls, rail access to the new line was available at Stronghold, 16 miles from the north end, and at Lookout, 12 miles north of Bieber. Lookout was the eastern end of a 36-mile railroad which was acquired jointly by the Great Northern and the Western Pacific and this, through its connection with the McCloud River railroad, served as the means by which the contractor's equipment was first moved onto the line, on August 18, 1930, to start work on the southerly 28 miles.

The clearing of this section, which was fairly heavy, through a forest of yellow pine, was done by the Mc-

Cloud River Lumber Company, to whom the timber was sold. In order to avoid waste of this splendid timber, two clearing operations were necessary. A width, sufficient only to permit grading to proceed, was cut out at first and the logs were hauled to Lookout. After track was laid through this section, the right of way was cleared for the full width, and the merchantable logs reclaimed.

Grading over this section was comparatively light, involving 390,000 cu. yd. of common excavation and 187,000 cu. yd. of lava rock, averaging less than 25,000 cu. yd. per mile. The equipment used consisted principally of gasoline operated caterpillar mounted shovels with motor trucks. A few McMillan 5-yd. hydraulic scrapers were employed on light cuts and fills and in opening up and stripping the larger cuts. One team outfit was used on side borrow in the two-mile section north of the Bieber terminal.

This terminal, which is about two miles long, was constructed under a joint arrangement with the Western Pacific. It is located on a wide level flat and, owing to the periodic spring floods in the Pit River valley, it was necessary to place the grade line for the engine terminal, repair yard, classification yard and scale track on a fill about four feet above the general ground elevation. This required 290,000 cu. yd. of filling, material for which was secured from borrow pits opened up in the sidehills near the south end of the terminal. The maximum haul was about two miles, and the work was done by motor trucks serving caterpillar shovels.

#### Caves Under the Roadbed

An interesting problem was imposed in the grading of an intermediate stretch of 33 miles over lava fields with a clay overburden. In this lava formation there are numerous subterranean passages and caverns varying greatly in the depth below the surface. One of the largest of these that has been discovered to date in this vicinity was near the surface and is crossed by the roadbed at Mile Post 49.2. This cave was traced for about 2,000 ft. and was found to be running in an easterly direction for an undetermined distance. Under the roadbed the cave is 13 ft. wide and has a maximum height of 7 ft. with a nearly perfect arch. The ceiling of the arch is but 7 ft. below the surface of the ground, of which one foot is earth and six feet is solid lava rock. The top of the railroad grade is 10 ft. above the ceiling of the arch. At first it was planned to support the arch under the roadbed with concrete columns, but after consultation with the U. S. forestry engineers it was decided that the rock formation was sufficient to sustain the weight of any load and impact imposed by heavy



The Great Northern's Main Track Crosses Over this Cave 10 ft. Above the Soffit of the Arch—Span 13 ft., Rise 7 ft.



Over 300,000 cu. yd. of Volcanic Cinders were Removed from this Cone for Ballasting the Line

trains. This was not the case, however, with another and larger cavern crossing the railroad grade about 150 ft. farther south. Here the roof was badly cracked and after securing permission from the U. S. Forestry department, the roof was broken down and the hole under the roadbed was completely filled.

Most of the grading on this part of the line was also done with caterpillar shovels and motor trucks. McMillan scrapers were used to some extent for filling from side borrow and in stripping the larger cuts. Side borrow was also handled by draglines and, for about 10 miles, with team outfits. About 2 miles of the fill at the south end of the Tule Lake bed was constructed of cinders that were obtained without stripping from a cone at Mile Post 38.

The construction of this embankment through the Tule Lake bottom was a problem of considerable interest. The dikes and ditches constructed by the U. S. Reclamation Service through the Tule Lake basin were normally made by dragline excavators, leaving a berm from 10 to 12 ft. wide between the toe of the slope of the dike and the edge of the borrow pits. Experience showed that with the height of dike no greater than 5 or 6 ft. above the normal lake level, settlement frequently occurred, causing corresponding upheavals in the bottom of the newly excavated borrow pits. In providing for the construction of the railroad embankment through this district, arrangements were made with the reclamation service to permit the railway to obtain the borrow material entirely beyond the limits of a 200-ft. right of way. This required a haul of more than 100 ft. to place the material in the prism of the embankment and the work was done by McMillan scrapers which moved from the borrow pit on one side of the line to the borrow pit on the opposite side, depositing the material in place on each trip as they moved back and forth. The material, therefore, was compressed in the process, being rolled by the caterpillar tractors, and thus provided a much more solid embankment than could have been obtained by any other process except team scraper work. The length of the haul from the borrow pit to the prism of the embankment made the later method impracticable.

Grading was completed in August, 1931. The total quantities, including the Bieber terminal, were 2,000,000 cu. yd., of which 493,000 cu. yd. was lava rock and 122,000 cu. yd. cinders.

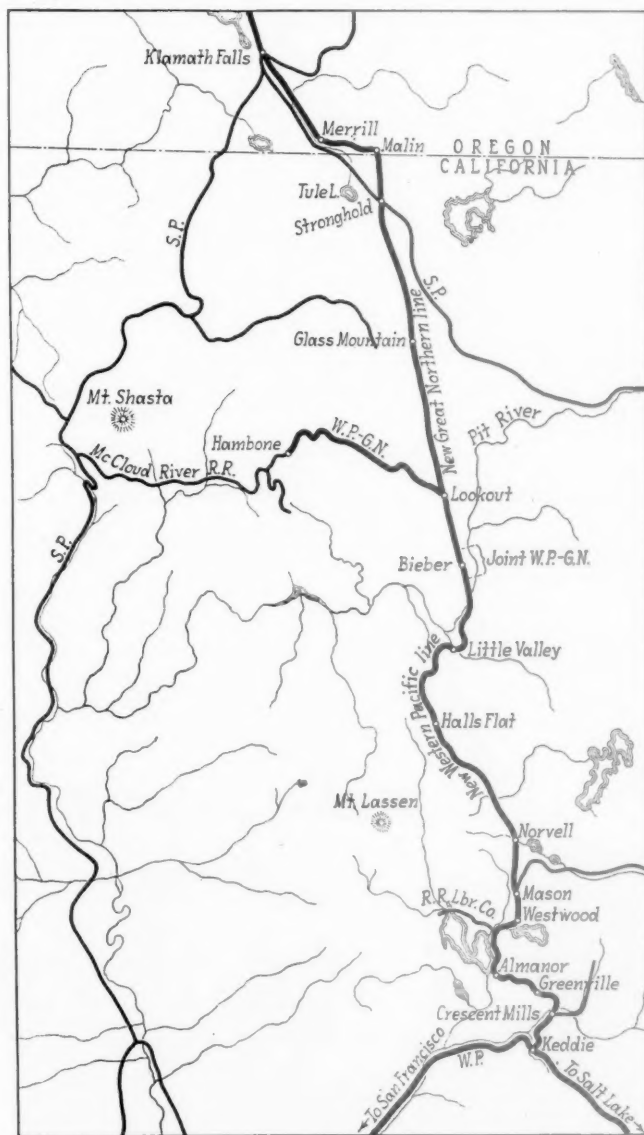
#### Bridge Work

Eight steel bridges and 40 timber trestles were required to span the various stream and highway crossings. The steel bridges consist of steel beam, deck gir-

der and through girder spans up to 90 ft. in length, which, with one exception, are on pile tiers and have pile trestle approaches. The pile trestles, of which the longest has a length of 140 ft. and a height of 32 ft., have 14-ft. panels with three 10-in. by 18-in. fir stringers to the chord, resting on bents of six cedar piles each. The numerous irrigation laterals, drainage ditches and other small waterway openings, were provided for by 18,500 lin. ft. of corrugated galvanized pipe, 264 ft. of 30-in. and 36-in. concrete pipe and a few small reinforced-concrete box culverts.

Main-line track was laid with new 90-lb. rail and all secondary tracks with second-hand 90-lb. steel. Ties, for the most part, were zinc-treated, bored for spikes and sized for plates, and laid 20 to a 39-ft. rail. Passing tracks are 4,000 ft. long and located from 10 to 15 miles apart. Where the heavier grades prevail, passing tracks were located at the summits.

Track was laid under contract, with equipment consisting of a track-laying machine, a self-propelled compressor car serving pneumatic track wrenches, another supplying air to pneumatic spike drivers, and a locomotive crane for material yard work. The railway furnished the necessary work trains. The tracklaying machine was developed by the contractor and consisted of a flat car on which was erected a superstructure sup-



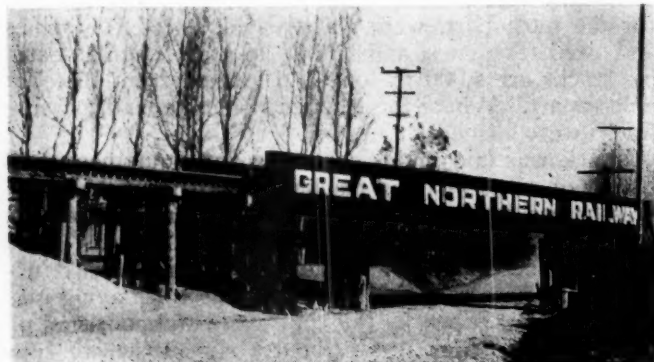
Location of the New Line Between Klamath Falls and Bieber



porting a live rail tram on the left side and a live tie tram on the right side, with a curve delivery tie tram well in front of the car for placing the ties in crosswise position on the roadbed, and a boom in front of the machine for transferring the rails from the rail tram to the ties.

### The Track-Laying Schedule

The track laying was scheduled at the rate of 8,500 ft. of completed track per working day. Material for each day's work was assembled in the material yard south of Klamath Falls and sent to the front each eve-



A Crossing of the Dalles-California Highway About 18 Miles South of Klamath Falls

ning. In laying the track, 13 ties were laid ahead of the machine in their correct position by means of the curved tram. Then a 39-ft. rail with a pair of loosely bolted angle bars was picked up from the tram and placed on the ties by the boom. No spiking was done ahead of the machine, the gage being held by metal bridles. Behind the machine the remaining seven ties per panel and the tie plates, bolts and spikes were distributed from cars at the rear of the train. The bolting crew, with a compressor car and pneumatic wrenches, removed the bridles, adjusted expansion and full-bolted the joints, while the hand-spikers gaged the track, placed the tie plates and quarter-spiked the track. These were followed in turn by other spikers with 4-lb. hammers, who tapped the remaining spikes only sufficiently to hold them in a vertical position. Lastly, came a compressor car with six pneumatic spikers to drive the spikes home. The track work was completed about 1,000 ft. behind the tracklaying machine.

Owing to the scarcity of gravel in the volcanic country traversed, it was decided to ballast the track with cinders from a volcanic cone at Mile Post 42. To reach this cone it was necessary to construct a spur about 5,000 ft. long, an 1,800-ft. pit track and a 1,500-ft. siding. The light overburden of soil on the cone, amounting to about 1,000 cu. yd., was stripped with McMillan scrapers and caterpillar tractors, and 300,000 cu. yd. of material was removed for the ballasting of the line, while from 30,000 to 40,000 cu. yd. in addition was used for surfacing highways. A 2½-yd. shovel was employed in this service until the cone had been leveled, after which three drag lines of 3 yd., 1½ yd. and ¾ yd. capacity continued the excavation below the surface.

### Terminal Facilities

With the entrance of the Great Northern into Klamath Falls in 1928, an attractive combined passenger and freight station of brick and tile was built, and a second-story is now being added to house the offices of the Klamath division. The division terminal is, how-

ever, at South Klamath yard, about two miles south of the town. Here provision has been made for about 16,000 ft. of yard tracks, an engine terminal with an eight-stall rectangular enginehouse and other facilities, including fuel-oil and water supplies. The interchange terminal at Bieber embraces about 17,500 ft. of yard tracks, locomotive facilities including a four-stall roundhouse, a 30-ft. by 60-ft. station, a storehouse, a stock yard and an icing platform. Stations, stockyards and houses for employees were built at a number of the intermediate points.

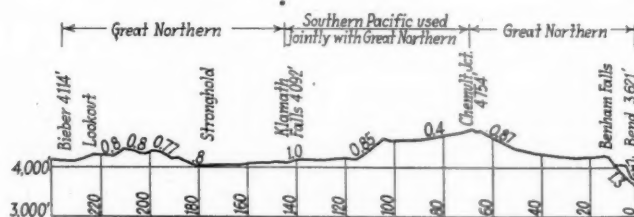
Water for locomotive and other uses is obtained from drilled wells having a maximum depth of 337 ft. The supply secured is ample for present needs and in nearly all cases of excellent quality. At Klamath Falls and at South Klamath yard the water is delivered at temperatures of 98 deg. and 90 deg. F. respectively. Pumping equipment of various types is employed. There are 50,000-gal. wood water tanks at South Klamath yard and at Lookout, and a 100,000-gal. steel tank at Bieber.

The grade crossing with the Southern Pacific's Alturas line near Stronghold is protected by an automatic interlocking with home and distant signals of the semaphore type. Automatic operation is obtained by the use of continuous track circuits and secondary control apparatus. It is planned to provide a similar installation for the crossing of the Brooks-Scanlon logging railway 5½ miles south of Bend, in connection with the new line construction described in the following paragraphs.

The line from Bieber to Klamath Falls was built by A. Guthrie & Co., St. Paul, Minn., under a contract that included the grading, bridgework, and track laying and surfacing.

### From Bend to Wanoga

The Great Northern has also expended nearly 1½ million dollars for the improvement of the line between Bend and Chemult. The northerly 22 miles of this stretch consisted of the railway purchased from the



Profile of the Great Northern Line from Bend, Ore., to Bieber, Cal.

Shevlin-Hixon Lumber Co., and, occupying the valley of the Des Chutes river where its longitudinal slope is relatively steep, it was a line of steep grades and heavy curvatures. There was one long grade of 3 per cent and another of 2.45 per cent, while the curves were as sharp as 15 deg. This section served temporarily as part of the line into Klamath Falls, but when it became necessary to provide a route capable of handling through traffic, it was decided to abandon the 14 miles from Bend to Benham Falls in favor of an entirely new location, and to make extensive line revisions in the remaining 8 miles from Benham Falls to Wanoga. These improvements resulted in a saving of 2.1 miles in distance and the elimination of 2,800 deg. of curvature. On the new line also, maximum curvature was limited to 3 deg. and the maximum grade to 1.3 per cent against south-bound movements. In addition, two crossings of the river were eliminated.



The total grading amounted to 578,000 cu. yd., of which 80,000 cu. yd. was required for terminal improvements at Bend, 400,000 cu. yd. for the new line and 178,000 cu. yd. for the eight miles of line revision. On the new line work, 90,000 cu. yd. of the total grading was in lava rock, which was handled as a special classification. This was difficult work, requiring heavy blasting to loosen comparatively small quantities of rock. The sharp and angular rock was especially hard on rubber truck tires and on shoe leather. The equipment employed in the grading was much on the same order as that used on the California work.

The bridge work of this line was light, involving one plate girder span, two steel beam spans, two frame trestles, a concrete syphon, and less than 1,000 lin. ft. of 24-in. corrugated iron pipe. The track standards are substantially the same as those on the line south of Klamath Falls.

The work south of Bend is all being done under contract by the Hauser Construction Company, Portland, Ore., except that about 11 miles of the track laying is being done by company forces. The work was started in August, 1931, and the grading was scheduled for completion in January of this year. Between Wanoga and Chemult, 47 miles, the line was improved by bank widening, ballasting and tie plating.

#### Total Cost \$6,500,000

The total cost of the construction work carried out in connection with the California extension since February, 1929, is \$6,500,000, which is divided as follows:

Klamath Falls to Bieber Terminal .....	\$4,320,000
Bieber Terminal .....	740,000
Bend to Wanoga .....	1,220,000
Wanoga to Chemult .....	220,000
	<hr/> \$6,500,000

One half of the cost of the Bieber terminal is assumed by the Western Pacific.

This work was carried out under the direction of C. O. Jenks, vice-president operating department, and

J. R. W. Davis, chief engineer. Location surveys and construction were under the direct supervision of Col. F. Mears, assistant chief engineer at Seattle, Wash. C. F. Hensel is engineer in charge at Klamath Falls. J. J. Hess, general roadmaster at Seattle, supervised the track laying, ballasting and bank widening from Bend to Chemult.

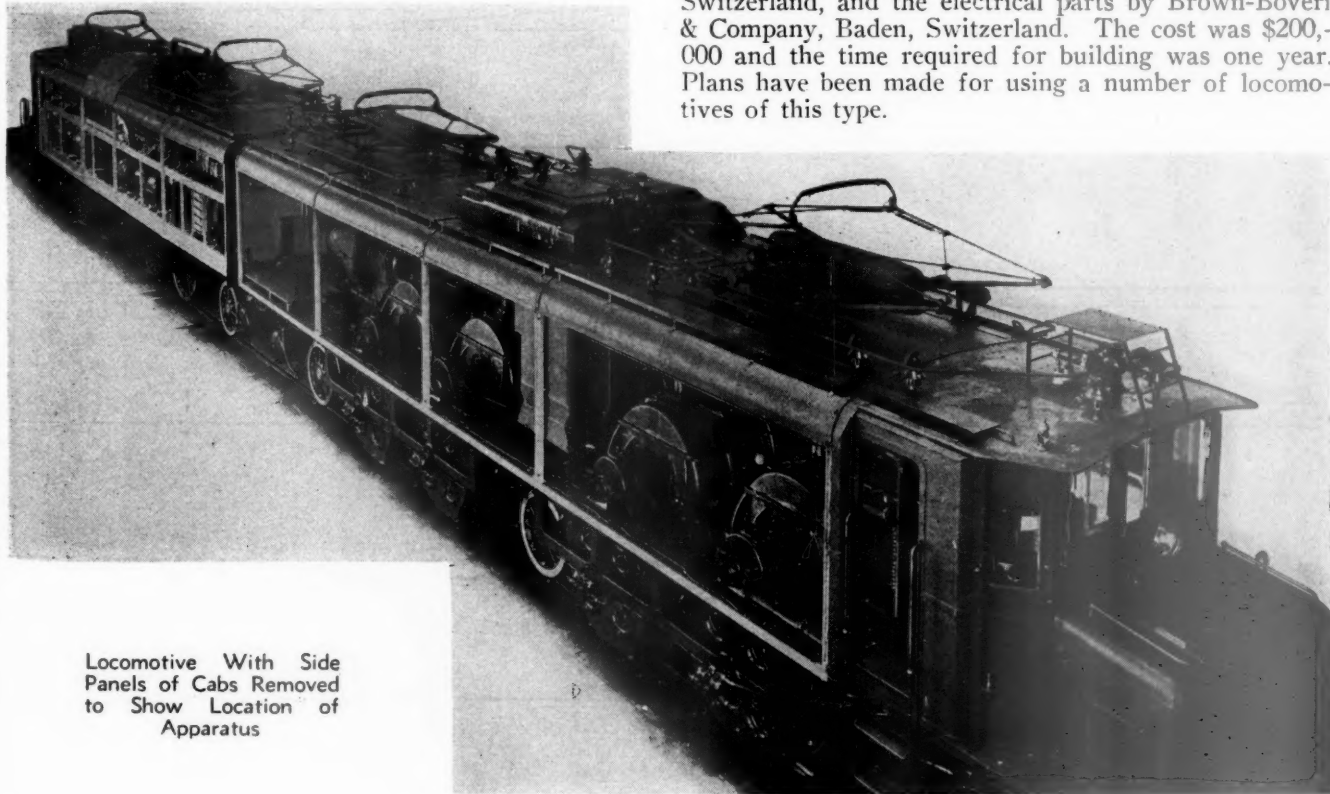
## Swiss Electric Locomotive Develops 8,500 Horsepower

**A**N electric locomotive of a new type has been completed and tested for use on the St. Gothard Line of the Swiss Federal Railroads. The locomotive was designed especially for service between Erstfeld and Bellinzona, Switzerland. There are heavy grades between these points and heretofore it has been necessary either to divide the trains operating over this section or supply them with an extra locomotive. The new locomotive is capable of hauling a full tonnage train over this section without a helper.

The locomotive is 111½ ft. long and is built in two symmetrical sections with a joint in the middle which permits separating the two sections. Each section is a complete unit in itself and is equipped with four motors and four driving axles. There are 14 axles in all in a 1-B-1-B-1 + 1-B-1-B-1 wheel arrangement.

The locomotive is designed for either freight or passenger service. It weighs 245 tons and develops a maximum of 8,500 hp. It will haul 1,500-ton trains consisting of thirty-seven 40-ton cars on level track and will haul 750-ton trains over the 2.7 per cent grades on the St. Gothard Line. It is capable of a speed of 62 m.p.h.

The mechanical parts of the locomotive were built by the Locomotive and Machinery Works, Winterthur, Switzerland, and the electrical parts by Brown-Boveri & Company, Baden, Switzerland. The cost was \$200,000 and the time required for building was one year. Plans have been made for using a number of locomotives of this type.



Locomotive With Side Panels of Cabs Removed to Show Location of Apparatus

# Centralized Traffic Control Installed on the Baltimore & Ohio

Train operation by signal indication on 43 miles of single track reduces delay and effects savings in operating expenses

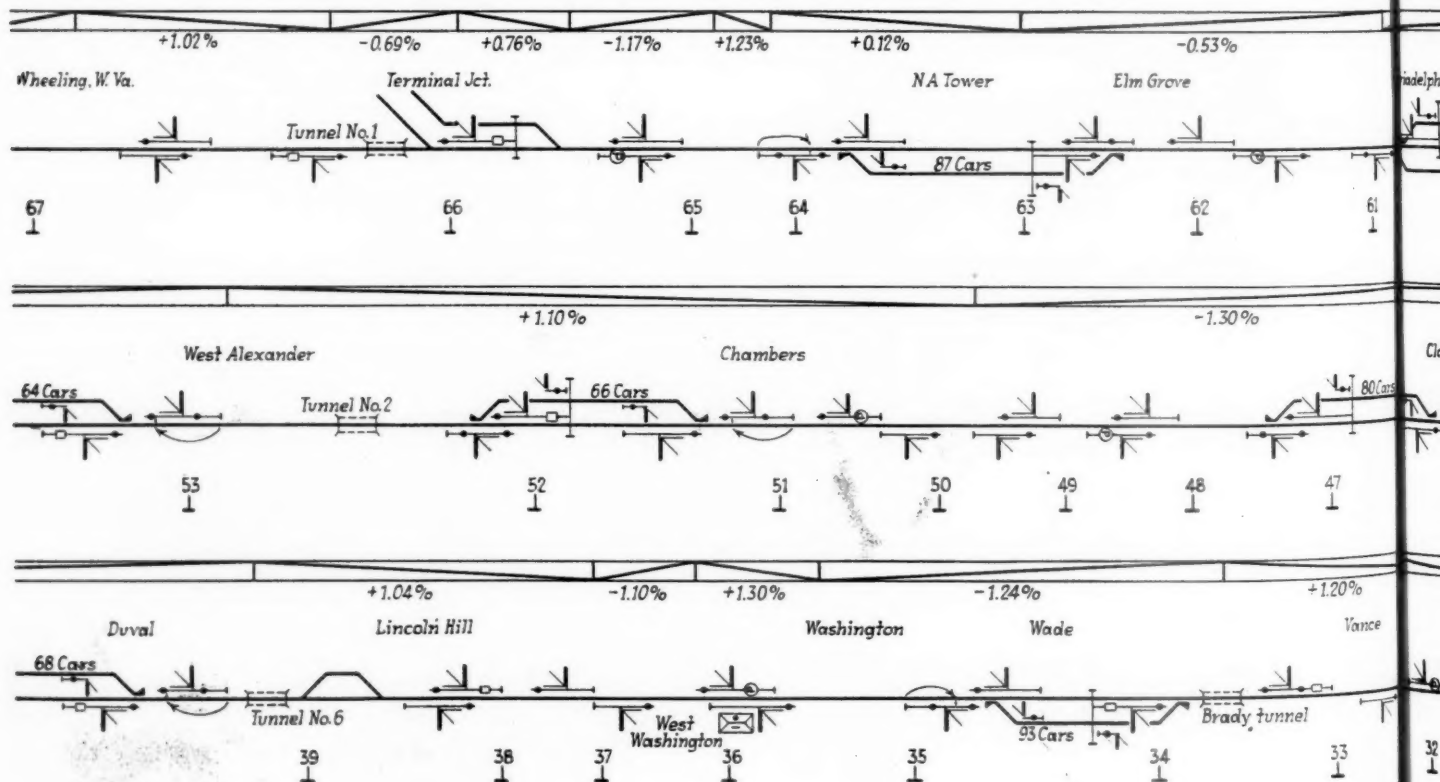


View of the Lap Layout at Clokey

THE Baltimore & Ohio has installed centralized traffic control on 43 miles of single track between Wheeling, W. Va., and Gilkeson, Pa., and as a part of the project, has also provided automatic signaling on 19 miles of double track from Gilkeson to Glenwood Junction (Pittsburgh). The centralized control installation includes the operation of the switches at 11 passing tracks and at the end of double track as well as the signals at these points for directing train movements, a total of 23 power-operated switches, 70

controlled signals and 38 automatic signals being involved in the project. The control machine is located at West Washington, 31 miles from Wheeling.

This subdivision traverses a mountainous territory, crossing several minor divides, and including nine tunnels ranging from 400 ft. to 1,700 ft. in length. Starting at Glenwood Junction a double-track line ascends on a grade of 1.7 to 1.9 per cent for five miles to the Whitehall tunnel, and then descends on a grade of 1.1 to 1.2 per cent for four miles, beyond which a rolling



Track and Signal Plan of the Centralized Traffic Control

grade extends through Thomas Tunnel for 11 miles to Gilkeson, the end of the double track. On the single-track section between Gilkeson and Wheeling the line passes through seven tunnels, each at the summit of grades descending for two to three miles in each direction, the maximum gradient eastbound being 1.7 per cent and westbound 1.85 per cent. The Mallet-type locomotives assigned to freight service on this division have ratings of 2,300 tons eastbound and 2,200 tons westbound, comprising on the average trains of 40 loads. The lading includes merchandise moving in both directions while considerable coal is handled eastbound. The traffic includes four passenger trains and from four to six freight trains each way daily, including the local freight. Considerable coal is mined in this territory and a turn-around pick-up train is operated from Pittsburgh to Elm Grove and return daily. Therefore, the total number of train movements range from 18 to 20 daily. In addition to the difficulties on account of grades, the line includes numerous curves, most of which range from 3 to 8 deg. with some as sharp as 11 to 12 deg. The speed limit is 40 m.p.h. for passenger and 30 m.p.h. for freight trains.

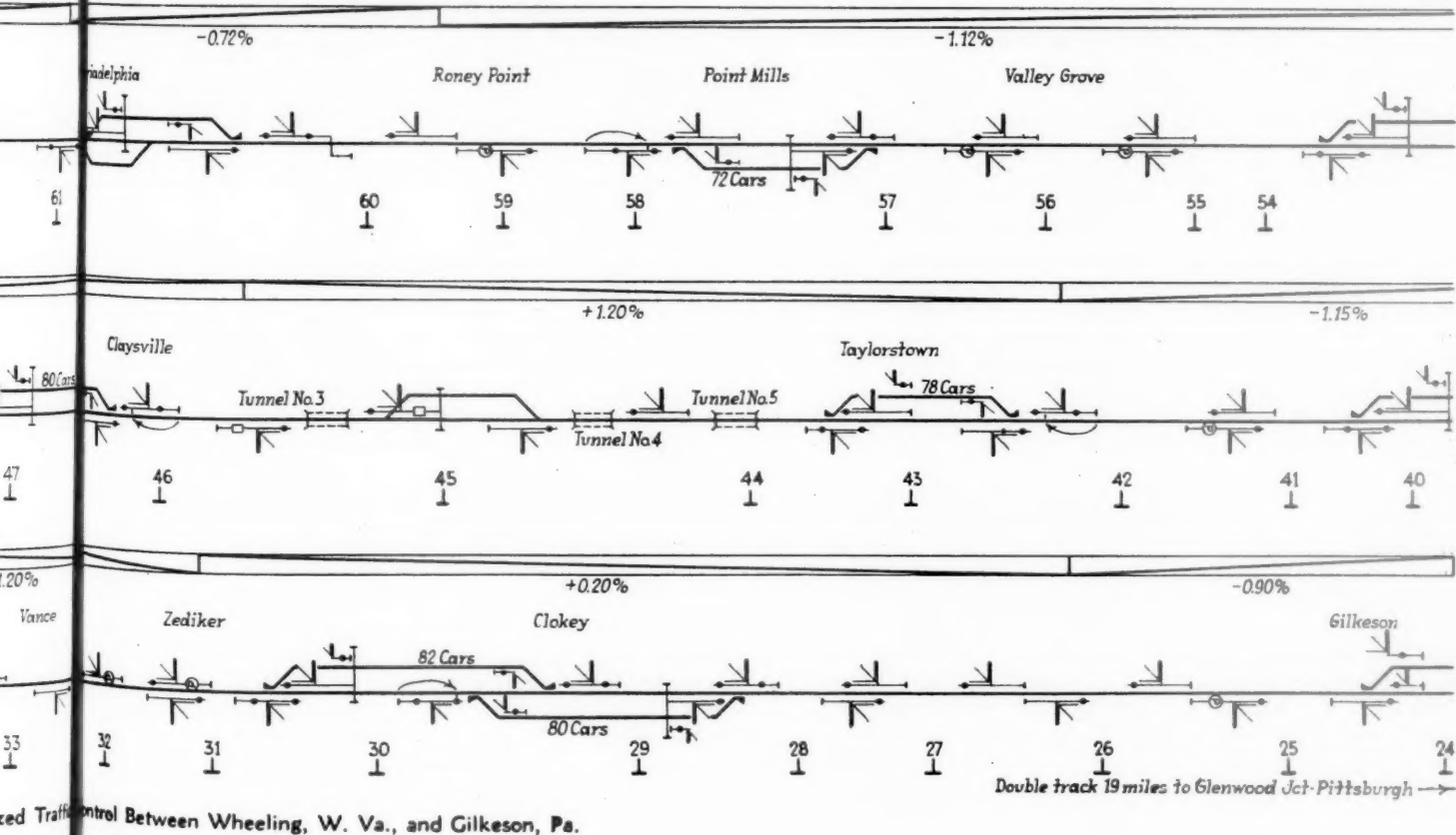
### The Track Layout

Previous to the improvements recently completed, this line consisted of a single main track from Glenwood Junction to Rand, a distance of 2 miles; double track, Rand to Bertha, 4.5 miles; single track, Bertha to Finleyville, 6.6 miles; double track, Finleyville to Gilkeson, 6 miles; and single track, Gilkeson to Wheeling 43.2 miles, with 13 intermediate passing sidings having an average capacity of 65 cars. It was decided to connect the short stretches of double track to provide continuous double track from the west end of the Monongahela River bridge at Glenwood Junction to Gilkeson, a distance of 18.7 miles. The east end of the double track was connected with the interlocking plant at Glenwood Junction by a low-voltage remote control

machine and the double track signaled with color-position-light automatic signals, 30 being installed. The double track extensions released three-trick manual block train order stations at Rand, Bertha and Finleyville and permitted more flexible operation of fill-out and turn-around service between interchange points at Bruceton with the Pittsburgh & West Virginia and at Snowden with the Montour railroad.

The topography of the single-track territory between Gilkeson and Wheeling is such that the cost of constructing a second track was prohibitive, there being seven tunnels, 58 bridges and numerous heavy cuts and fills. It was decided therefore to increase the track capacity of this section by providing centralized traffic control and re-arranging the passing sidings and increasing their capacity to 80 or more cars. The north siding at Clokey was extended and a new south siding constructed to make a lap layout. The sidings at Wade, Taylorville, Claysville, West Alexander and Elm Grove (NA Tower) were extended. The sidings at Duval, Bell Siding, Point Mills and Triadelphia were left as they were, while those at Wylandville and Vance were retired.

The switches for the passing tracks, as well as the switch at the end of the double track at Gilkeson, are all equipped with power-operated switch machines, the control of which is included in the centralized machine at Washington. This control machine also includes the control of all the absolute signals for directing train movements at the various switches where power machines are used, as mentioned above. The west end of the centralized traffic control ties in with the interlocking at the east end of the yard at Wheeling. All turnouts to industry tracks and to sidings not equipped with power switch machines are provided with switch circuit controllers so as to afford automatic protection. Furthermore, a derail is located at the clearance point on each of the turnouts and a switch circuit controller is connected to each of these derails.





Under the previous method of operation, train movements over the single track from Gilkeson to Wheeling were governed by time-table, train orders and manual block. Block offices were located at eight points, Gilkeson, Wylandville, Washington, Taylorstown, West Alexander, Point Mills, "NA" Tower and Wheeling. About 40 train orders were issued each trick when traffic was equivalent to what it is now. Under the new centralized traffic control system of operation train movements are directed by signal indication without written orders and without superiority. On account of this change in the method of operation, several block offices were closed and 16 operators were transferred to other points, thus effecting an annual saving in operating costs of \$30,000 for wages alone, the remaining operators being retained for station work.

On the double track from Glenwood Junction to Gilkeson, the trains are operated under standard double-track rules, automatic block signal protection being provided. However, space is available in the new control machine for the necessary levers for signals to control train movements by signal indication in either direction on both tracks of this double-track section. The double-track extensions and automatic signals were put in service to Gilkeson on March 17, 1931. The C.T.C. system was placed in operation in sections, the last of which was completed on August 1, 1931. No changes have yet been made in passenger train schedules; the principal benefit so far as these trains are concerned is that any lost time can be made up more readily without delaying other trains. Under the manual block system all freight trains were required to clear the main line one block ahead of a passenger train. No permissive movements were permitted in which any passenger train was involved, either for following a passenger train or for a passenger train following a freight train. With the new system, including automatic signal protection, meeting points can be arranged according to the circumstances so that little time need be wasted waiting for a meet; as a matter of fact non-stop meets are not at all unusual. The elimination of train stops to pick up orders or to enter or leave a siding not only saves time but reduces fuel and water consumption.

Therefore, although the system has been in service only a few months, it is already quite evident that the factors mentioned above are contributing to the safety of train operation and expedite the movement of trains. For example, the former schedule for the fast through merchandise freight trains between Glenwood Junction and Wheeling was 3 hr. 20 min. eastbound and 3 hr. 30 min. westbound. These trains are now being operated over this territory in three hours regularly and in some cases even better time is made. Likewise, the time between terminals for tonnage trains has been reduced one hour, while the turn-around run from Pittsburgh to Elm Grove and return, which formerly required about 11 hr., is now being made regularly in 9 hr.

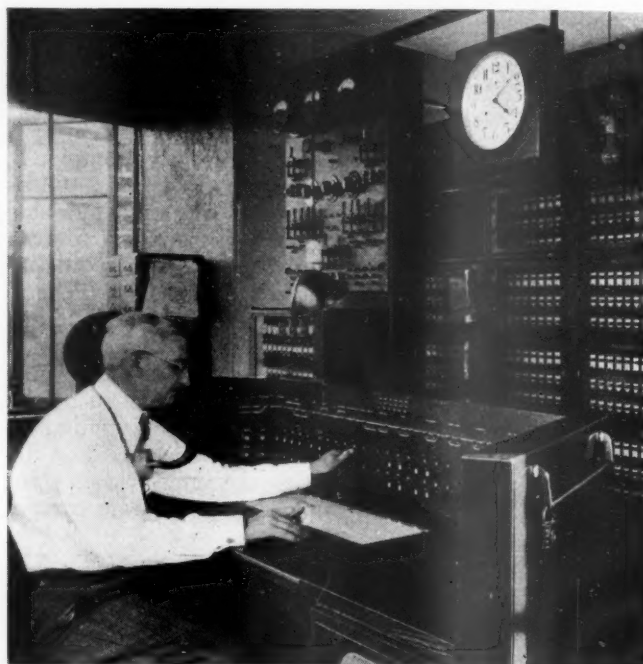
Under the previous method of operation a heavy penalty in overtime was incurred, which was brought about primarily by two factors. In the first place, the business on this line required frequent set-offs and fill-outs, and this condition, together with the manual block rules, resulted in considerable overtime. Freight train overtime for the first 11 months of 1931 showed a decrease of 72 per cent under the corresponding period of 1930, the average time per train having decreased 22 per cent. However, consideration must be given to the fact that the C.T.C. was in service for only the latter four months of the period and also that throughout the 11 months

there was a decline of 24 per cent in the number of trains as compared with the corresponding period in the previous year. Therefore, it is difficult to determine how much of the decrease in overtime is due to the decline in traffic and how much to the new system.

### Centralized Traffic Control System

The centralized traffic control equipment is known as the Duplex system, manufactured by the General Railway Signal Company, which as the name infers, provides for the simultaneous transmission of controls to, and the receipt of indications from, the same or different stations. Two circuits, one for outgoing controls and the other for incoming indications, are employed in each direction from the control office, those running east being separate from those running west.

In operation, the dispatcher moves his levers as desired, paying no attention to the order in which stations are called, which occurs automatically one at a



The Dispatcher Control Machine Is Located in the New Tower at Washington

time, in a predetermined order until all that are required to carry out the changes set up by the new position of the levers have been reached. This preference of stations is not necessarily geographical and can be made in any order desired at the time that the apparatus is wired and can be revised by making a change in the wiring. Independently or simultaneously with the calling of a station from the control office, any station, including the one called, can send in its call, and record its indications. If more than one station desires to call in for the purpose of recording changes in indications, they follow each other in predetermined order.

The control machine is in the form of a flat-top desk with the control panel mounted on the top at the back. On account of the length of the control panel, the ends are brought forward at an angle of 45 deg. so that the levers are readily reached by the dispatcher. A track diagram extends along the top of the panel with the signal and switch levers located directly below the corresponding switches on the diagram, the signal levers being in a row above the switch levers. The levers are in the form of rotating knobs, with indica-

tion lamps in their centers. The switch levers have two positions with normal to the left, while the signal levers have three positions, the normal position being with the arrow pointing vertically up, while movement to the left clears the signals governing eastward and to the right clears the signals governing westward movements. The switch points on the diagram are mechanically operated by the switch levers, showing the line-up as a white line.

The track occupancy information is given by red lamps in the track diagram, which are normally out and become lighted upon the presence of a train. There is a light for each track section in which a controlled switch is located and one for each approach annunciator used where controlled points are a considerable distance apart. Inserted in the desk is the automatic recorder which records the position of trains by impressions on the graph sheet made by metal type striking through to a typewriter ribbon. These impressions also indicate whether the train is continuing on the main track or is entering or leaving a siding, the impression being a horizontal dash (—) for a main track move and a diagonal dash (/ or \) when the switch is reversed. The dispatcher connects the impressions with lines so that the record may be read more easily by others.

The movement of a signal lever to right or left automatically starts the system and the switch and signal controls are sent out to the field station. The movement of a switch lever does not start the system if moved alone, the corresponding push button being used for this purpose. All signals are stick signals and will not clear for a following train unless the operator clears the signal lever a second time. When it is desired to change to Stop the indication of a signal which has not yet been passed by a train, the push button must be pushed in addition to placing the signal lever in the normal position as the movement of the signal lever will not cause the code to start.

The Baltimore & Ohio standard color-position-light signals are used throughout this installation. The main unit is equipped with two red lights in a horizontal line, two yellow lights in a row diagonally upward to the right and two green lights in a vertical line. Red is for stop, yellow for caution, "proceed prepared to stop at the next signal" and green for "proceed." These indications are modified by the use of white markers. The red indication without a marker means "stop and stay," but with the marker either above or below, it indicates "stop and proceed." The failure of a marker light will result in a more restrictive indication being given. The indication of any signal can be displayed either as "stop and stay" or as "stop and proceed," this facility being taken advantage of by making all intermediate signals indicate "stop and stay" against opposing moves and "stop and proceed" for following moves. When desired, the main unit can be equipped with a permissive indication displaying two lunar white lights in a row diagonally upward to the left and this indication is used to govern trains against traffic at Gileston. The use of this signal is safeguarded by requiring the dispatcher to operate two levers to clear it and in addition the train must have orders before accepting the signal.

The a-c. floating system of power supply is used for this installation, power being purchased at 8 points and distributed at 460 volts. Exide storage batteries charged by G.R.S. rectifiers are used throughout. The apparatus for the signaling, as well as for the centralized traffic control on this installation was furnished by the

General Railway Signal Company, and was installed by the Baltimore & Ohio signal construction forces under the direction of the signal engineer and under the supervision of the engineer of maintenance of way.

## Freight Car Loading

WASHINGTON, D. C.

**R**EVENUE freight car loading of 574,756 cars in the week ended February 6 was the highest total since December 19 and represented an increase of 13,599 cars over the preceding week, due to larger shipments of coal and coke. The decrease as compared with the corresponding week of last year was 144,297 cars and as compared with 1930, 311,945 cars. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

### Revenue Freight Car Loading

Districts	Week Ended Saturday, February 6, 1932		
	1932	1931	1930
Eastern .....	132,479	163,217	205,632
Allegheny .....	111,928	148,974	180,757
Pocahontas .....	36,938	42,599	56,828
Southern .....	89,107	113,154	134,969
Northwestern .....	66,921	87,101	109,594
Central Western .....	88,446	104,989	129,934
Southwestern .....	48,937	59,019	68,987
Total Western Districts .....	204,304	251,109	308,515
Total All Roads .....	574,756	719,053	886,701
Commodities			
Grain and Grain Products .....	31,424	41,453	43,769
Live Stock .....	20,072	22,797	25,782
Coal .....	128,630	138,716	190,858
Coke .....	7,108	9,356	11,972
Forest Products .....	18,333	36,427	53,586
Ore .....	1,971	5,506	7,976
Mdse. L.C.L. .....	187,542	215,439	241,483
Miscellaneous .....	179,676	249,359	311,275
February 6 .....	574,756	719,053	886,701
January 30 .....	561,157	719,397	898,835
January 23 .....	562,938	715,474	862,346
January 16 .....	573,276	725,212	847,155
January 9 .....	572,504	713,128	862,461
Cumulative total, 5 weeks .....	2,844,631	3,592,264	4,357,498

### Car Loading in Canada

Car loading in Canada for the week ended February 6 amounted to 40,034 cars. This was 841 cars less than were loaded the previous week and 7,105 cars less than for the fifth week last year. Grain loading was particularly light, being 992 cars less than for the previous week and 2,158 cars under last year's loading. The drop of 807 cars from the previous week's loadings in the western division was probably affected by the extreme cold weather and by the Prince Rupert and Vancouver elevators being nearly filled. Coal and coke were heavier than for last year by 1,771 cars and 177 cars, respectively, but lumber was lighter by 695 cars, pulpwood by 1,551 cars, merchandise by 1,683 cars and miscellaneous freight by 1,919 cars.

The index number for merchandise loading continued to decline. For the week it was 86.92 as against 89.37 for the previous week. Index numbers for total loadings also declined, being 69.40 for the eastern division, 71.61 for the western division and 70.17 for Canada, whereas for the previous week they were 73.31, 74.10 and 73.59, respectively.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
February 6, 1932 .....	40,034	20,752
January 30, 1932 .....	40,875	20,519
January 23, 1932 .....	40,254	20,081
January 16, 1932 .....	47,139	28,635
Cumulative Totals for Canada		
February 6, 1932 .....	199,731	100,879
January 31, 1932 .....	222,182	130,133
February 1, 1930 .....	269,786	174,944



# Railway Fuel

Opportunities for direct profit and substantial development of  
railroad business await the initiative of those directing  
purchases of railway fuel

By H. C. Woodbridge

Manager, Railway Service Department, Rochester & Pittsburgh  
Coal Company, Rochester, N. Y.

**O**N the program of the Third International Conference on Bituminous Coal which was held at the Carnegie Institute of Technology, Pittsburgh, Pa., November 16-21, 1931, was a paper on Railway Fuel by H. C. Woodbridge, manager, Railway Service Department, Rochester & Pittsburgh Coal Company, Rochester, N. Y., in which was discussed a considerable number of new factors in connection with the subject of railway fuel economies. Associated with Mr. Woodbridge in the preparation of this paper were C. P. Dampman, supervisor fuel conservation, Reading Company, Philadelphia, Pa., and Malcolm Macfarlane, general fuel inspector, New York Central, New York. The following is an abstract of Mr. Woodbridge's paper.

## Economies in the Purchase of Railway Fuel

The locomotive boiler performance has been so improved that it now compares favorably in efficiency with the modern stationary boiler. Improvement has been accomplished principally by the almost universal installation of superheaters and brick arches in old as well as in new locomotives; by the extensive use of feedwater heaters; by the introduction of greater furnace volume and firebox heating surface as well as increased grate surface in new locomotives; by the rapidly extending use of grates with individual air inlet openings as small as practicable, and with total aggregate air inlet opening so restricted that excess air is reduced approximately to the minimum consistent with good operation.

The more efficient boiler, accompanied by substantial improvement in construction of locomotive machinery, has justified long runs, thus greatly reducing standby fuel losses. Improvements in valves and valve setting and the use of limited cut-off, steam-chest and back-pressure gages and the other indicators, such as pyrometers, pilot valves, etc., have combined to improve locomotive operation.

## Fuel Consumption Reduced in

### Freight and Passenger Service

The stoker, by making possible the operation of large locomotives at maximum drawbar horsepower for hours has contributed essentially to progress in transportation. Such developments, accompanied by increased carrying capacity per car, reduction in grades, installation of modern signaling, additional trackage, reduction in delays accomplished by superior make-up and dispatching of trains, the education of engine crews and marked improvement generally in fuel furnished, have resulted, during the past 10 years, in a 30 per cent reduction in pounds of fuel per thousand gross ton-miles in freight service; namely, from 197 lb. in 1920 to 138 lb. in 1930.

In passenger-train service, with considerable increase in average weight per car, the fuel consumption per passenger train car-mile was reduced during the same period 21 per cent, or from 18.8 lb. in 1920 to 14.7 lb. in 1930, and there was a further reduction in fuel used per unit of service during the first six months of 1931. The average cost of this fuel during the years 1920 to 1930 was lowered from \$4.20 to \$2.34 per ton.

Has any other great industry survived a reduction of 30 per cent in demand per unit of work performed, accompanied by a 44 per cent reduction in price per unit delivered, in dealings with its best customer and largely dependent associate?

In the electrical industry there were produced 303 kw.hrs. per ton of coal used during the year 1902; while in 1928 there were produced 1,135 kw.hrs. per ton of coal used, an almost 400 per cent destructive change so far as coal producers and the railroads are concerned. And, simultaneously, the oil and gas industry, in its desperate endeavor to provide outlet for ill-advised over-production, has made colossal expenditures for pipe lines which have been used recently to transport fuel to points of consumption where it has been sold at less than cost. The use of oil burners in the United States increased from 12,000 in 1921 to more than 600,000 in 1930.

Certainly, that industry's chaotic scramble has not been conducive to prosperity of the railroads or the coal producers. However, persistently and at great expense, the substantial coal operators have continued research and developed improvements in mining and preparation of coals, leaving millions of tons of coal superior to that marketed 20 years ago underground and impossible of future reclamation, in order to improve their product and contribute most worthily to the accomplished progress, entire credit for which is assigned to others almost invariably. The coal industry has suffered exhaustively as, for various reasons, the railroads are now suffering. With approximately the same mammoth investment in facilities for transporting coal as there is in coal properties and facilities for mining, preparation and loading coal, there can be no plausible excuse for failure of these two basic industries to co-operate wholeheartedly.

The destructive agencies of selfish political aspirations, inclined to prevent such co-operation, have taken recently several injections of light and reason, and more antitoxin awaits them during these trying times if their fever does not abate.

## Why Buy Fine Coal for Locomotives?

That the railroads would effect substantial economy in fuel if their locomotive coal supply were plus 1½ in.



or 2 in. when shipped from the mines, there is no question.

The direct gain in fuel performance would certainly more than offset the necessarily increased cost as compared with cost of mine run, and the resultant increased operating efficiency and satisfactory service, including reduction in cinder and smoke loss frequently accompanied by damage or injury cost and public ill will, would further augment the direct profit on such investment. And of vital importance to the railroads, by confining the greater portion of their locomotive requirements to the plus 1½ in. or 2 in. coal, the mine operators would be obliged to promote commercial use for essentially the same amount of the smaller sizes, thus furnishing additional traffic for the railroads.

The use of these smaller sizes as powdered fuel and in stationary stoker-fired boilers has increased materially during recent years and extensive expansion of its use in this field depends upon the ability of coal operators to produce it without continued loss.

The elimination of "fines" from coal for use on locomotives is desirable because of the heavy draft to which all locomotive fires are necessarily subjected in order to burn the 150 lb. of coal frequently required per square foot of grate surface per hour. Universally, such fires are fed from above either by stokers or hand shovels, the plane of delivery being well above the grates and at a level where the intensity of draft is rapidly approaching its firebox maximum and a large proportion of the fine particles of coal which are scattered in delivery through this plane usually will be carried over the arch and out through the flues.

With small particles eliminated, the resultant coal is carried to the fire bed by its own weight where it becomes plastic, cokes and burns. In the disintegration accompanying the process of combustion, the particles thus formed are in the plane of least draft intensity and, therefore, are much less likely to be carried over the arch than particles injected into the draft at higher level where the velocity of the draft stream is at least twice that immediately above the fire bed.

The distillation of gases from fine particles is much more rapid than from coarser pieces and the probability of banking increases when the fire is crowded with a preponderance of fines. Smoke elimination is, therefore, more difficult with slack than with the larger sizes.

#### Losses from Slack Coal

Slack coal is lost by being blown off cars and off locomotive tenders, by leakage from cars and coal chutes, by falling through grates when preparation to fire up is being made, and by falling so far into the ashes on the grates when the fire is being built up that some of it does not ignite.

The popular and efficient perforated grates, or the several designs of grates which provide many small air inlets well distributed over the grate surface, have reduced materially such ashpan loss as compared with the loss sustained when finger or table grates with larger openings are used, but a large quantity of fine coal can fall through seven thousand holes ½ in. in diameter and, in order to obtain 20 per cent air opening in a grate surface of 90 sq. ft., it is necessary to have approximately seven thousand holes ½ in. in diameter, plus the necessary clearances between individual grates and grate frames.

In Canada and the United States there are approximately 55,000 coal-burning locomotives, more than 12,000 of which are equipped with stokers. As these stoker-equipped locomotives constitute a substantial

proportion of the modern, high capacity units used in the transportation of both freight and passengers, it seems appropriate to include in this presentation the conclusions arrived at after extensive investigation as to the most suitable coal for stoker-fired locomotives.

#### Coal for Stoker Firing

It is important that the coal supply in the tender be such that it will feed to and be handled by the conveyor screw of the stoker without attention or labor on the part of the fireman, except infrequently and then only for brief periods. This makes advisable the use of sized coal, the maximum dimension of any piece being preferably about 3 in., but not more than 8 in., in order to provide against any interruption in the flow of coal through the stoker mechanism from the tender to the firebox. Of almost equal importance in this particular is the proportion of fines, as a tender load of coal containing a considerable proportion of moist slack will often fail to feed into the conveyor trough without manual assistance.

As to the ideal minimum size of coal for use on stoker-fired locomotives, the consensus of opinion is conclusive that the best results will be obtained if all coal which will pass through a ¾-in. shaker screen is removed from the locomotive stoker supply. The reasons for this restriction are not only to insure the desired reliability of flow through the stoker, but also to reduce the percentage of fines discharged into the firebox with smoke and cinder nuisance incident thereto and to make it possible, within good practice, to maintain a satisfactory body of fire.

It is possible, and may under certain circumstances be advisable, to use lump, slack or mine-run on locomotives which are fired by hand or with stokers now in use, but railway officers should consider more thoroughly the cost of operation, the value of efficient and satisfactory service, and the possible benefits to be derived from co-operation with coal producers.

In obtaining the maximum possible economy in fuel and reduction in smoke and cinder annoyance and costs, the selection of the stoker is almost, if not quite as important as the selection of the coal, the superior performance possible with sized coal being largely defeated when a high percentage of such coal is ground into slack by the stoker and its distribution within the firebox inefficiently controlled. The elimination of fines from coal delivered by a locomotive stoker is particularly desirable because of the thin layer of fire through all parts of which the draft passes freely, such thin layer of fire being essential to efficient locomotive stoker operation. There should be no banking in a locomotive which is stoker fired.

We accept rain from the heavens as an act of God. It seems that with the same complacency we are accepting the rain of cinders from many thousand locomotives with a direct loss of some 8 to 20 per cent in coal fired.

To select locomotive fuel on the results of laboratory analysis alone may result in expensive and ill-advised contracts. The characteristics of burning may often prove to be of greater importance in the selection of the most suitable fuel than the analysis of such fuel. To illustrate, the writer had considerable experience in locomotive service with one western coal analyzing approximately 18 per cent volatile, 66 per cent carbon, 16 per cent ash, and 12,500 B.t.u., which coal was utterly inefficient, apparently because the carbon did not burn readily at the attainable firebox temperatures, the ash containing from 30 to 40 per cent carbon. Perhaps

the carbon content of this coal was too dense or lacked the necessary impurities essential to easy ignition, the variations in chemical compounds of carbon being responsible for difference in combustion characteristics.

#### Heat Value Alone Is Not Controlling

Recently, I witnessed a series of carefully conducted road tests in which a coal analyzing 33 per cent volatile, 57 per cent carbon, 8.85 per cent ash and 13,875 B.t.u. consistently evaporated approximately 18 per cent more water per pound of coal than was evaporated on corresponding alternate-day runs with coal analyzing 31 per cent volatile, 61 per cent carbon, 7.20 per cent ash, and 14,360 B.t.u.

This same locomotive was used and the tonnage per train and the operating conditions were practically identical on all runs. The better performance of this lower heat-value coal being apparently due to its slightly firmer structure, a smaller percentage of fines and less flashy conflagration in spite of the two per cent greater volatile, with greater, yet thoroughly porous body of ash and fire on grates. This coal showed the highest average steam pressure during extensive tests of eight high-class eastern coals, several of which were superior from a chemical standpoint.

A fuel supervisor on one of the large eastern railway systems recently told me that the freight locomotives under his jurisdiction would do more work on one ton of coal from a particular mine than on one ton of coal from any other of the several mines furnishing fuel to this territory. The most creditable performance was made by coal averaging almost 11 per cent ash, this being from 1 to 3 per cent higher than any of the other coals in question.

Another large eastern road prefers this 11 per cent ash coal for their heavy-traffic, heavy-grade division. I asked the fuel supervisor on this road why he liked this comparatively high ash coal and he replied: "Come out with me and I will show you. You won't find 5 lb. variation in steam pressure at any time while our three-engine trains are climbing the mountain."

High B.t.u. content is, of course, desirable, but a few hundred heat units per pound often may be sacrificed advantageously if structure and burning characteristics are superior in a coal of somewhat lower B.t.u. content.

Frequently producers claim and consumers demand that ash content is and must be at the irreducible minimum, the lower the better. At least two of the most distinguished fuel economists and authorities on railway fuel in this country have repeatedly directed attention to the loss entailed by hauling ash content from mines to points of consumption, and to the improper or incomplete combustion and heat losses directly chargeable to ash in coal supply. I do not question their conclusions, so far as altogether extraneous matter is concerned, but a reasonable percentage of inherent ash in addition to thin layers of high ash binder often serve to delay combustion satisfactorily, to provide an essential body of fire and thus to diffuse and heat the air currents and make more nearly complete the union of oxygen and combustible elements throughout the fire-box, preventing at the same time large streams of cold air at any locality.

Usually, with fires of extremely low ash coal in modern locomotives you will have either excessive smoke and excessive loss through the safety valves, or a portion of the grates will be uncovered and much of the heat generated will be absorbed by the excess air admitted through the uncovered grates. The fireman, in attempting to balance these extremes, goes approxi-

mately from one to the other, with consequent variation in steam pressure and without obtaining the logically expected results from such chemically superior coal.

The ash should have fusion temperature as high as consistently obtainable, preferably not less than 2,500 deg. F., in order that clinkers will not be formed and to assist in avoiding honeycombing on and in the flues. Analysis of the ash, to determine the percentage of calcium, aluminum and iron oxides, often may be more desirable than to determine total quantity of ash. Sometimes volume and character rather than weight of ash must be considered.

Also, from a purely chemical standpoint, water in or on the coal as fired absorbs uselessly some of the heat generated by combustion of that coal, but many test-plant runs while a locomotive was working at or near capacity have shown increased evaporation in the boiler per pound of coal burned when the coal was thoroughly wet. Much road experience confirms such findings, the generally accepted reason for improvement being that the moisture makes the fine particles adhere to each other or to the lumps and they thus reach the fire bed, become plastic, coke and burn, which particles otherwise in great quantity would have passed over the arch, through the flues and out the stack practically unburned.

#### The Field for Low-Volatile Coal Limited

While low volatile (17 to 25 per cent) coals may be used advantageously in suburban or switching service where drastic smoke-restriction regulations are in effect, the preponderance of fines in low volatile bituminous coals and their slow ignition and burning features make their use in heavy service, particularly on stoker-fired locomotives, generally unsatisfactory.

High-volatile bituminous coals, always of comparatively hard structure, when suitably sized as fired are advantageous in some particulars as locomotive fuel, because such coals ignite quickly and burn freely, but compliance with smoke regulations becomes increasingly difficult as volatile content rises, and in the selection of coal the fact that the heat value of the volatile content varies should be kept in mind. While hydrogen has four times the heat value of carbon, the variations in heat value of volatile are due principally to the varying quantities of oxygen content, ranging in the eastern United States from 1.8 to 10.24 per cent. Such a considerable portion of this oxygen is combined with carbon as CO or CO<sub>2</sub> that the total B. t. u. content of the coals in question have a maximum variation of 1,290 B. t. u. per pound.

During the past three months I rode several hundred miles on a modern locomotive equipped with one of the latest and most efficient stokers, burning coal with from 39 to 42 per cent volatile content without smoke while the engine was working. However, if consistently available, medium volatile coals of reasonably firm structure should be selected for locomotive use, as such coals burn rapidly enough and maintain the desired body of fire while standing or drifting without causing excessive loss through the safety valves. With such coals undesirable smoke can be eliminated easily, which elimination is practically impossible with the high-volatile coals while the locomotive is standing or drifting, and difficult while running.

After experiment and experience has indicated the available coal best suited for the service in question, periodical analysis to assist in maintaining quality is necessary, especially when the coal is obtained from non-progressive or irresponsible producers. From the viewpoint of those in charge of locomotive operation



it is unquestionably advisable to avoid frequent changes in heat value, burning characteristics or sizing of coal furnished to any particular service.

The grates, air inlets, draft-induction features and human elements involved cannot be adjusted for most efficient service with varying fuel supply.

Co-operation or reciprocity dealings with shippers, while inevitable and, within reasonable limits, justifiable, should be so handled that those in charge of locomotive design, maintenance and operation are not kept in confusion because of varying characteristics of the coal furnished.

## How Regulate Motor Carriers?\*

J. J. Pelley of the New Haven presents definite program—Favors rate regulation which would preserve flexibility of truck service—Would end license reciprocity for trucks

By J. J. Pelley

President, New York, New Haven & Hartford

**T**HE important agencies comprising our national system of transport at present are the railroads, highway motor vehicles and the water lines. Each of these forms of transportation is capable of providing a useful service for the public. One of the most important public questions confronting the people of this country is the relationship which these forms of transportation shall bear to one another.

The problem could no doubt be solved by unrestricted competition with the survival of the fittest, but this could only result in tremendous losses, which are unnecessary and in the end must be borne by the public. Transportation is a public necessity and the public interest requires that the efficiency of our national system of transport must not be impaired.

The most economic, in fact the only satisfactory, method of bringing about the desired result is to establish equal opportunity and fair competition. The solution of the problem requires that each form of transportation be placed on a self-sustaining and economic basis to provide that service for which it is best adapted.

### Like Regulation of All Forms of Transport

There is a diversity of opinion as to the extent that regulation of motor transport and water lines is required. Some people want the railroads to be regulated but claim there is no necessity for regulating water lines or motor vehicles operating on the public highways. But motor vehicles, water lines and railroads all produce transportation. If it is in the public interest that the transportation for hire produced by railroad shall be regulated then it must likewise to be in the public interest that all transportation for hire be regulated, irrespective of whether the transportation is provided by motor vehicle, by water line or by railroad. Let us consider for a moment just what is required for the proper regulation of transportation.

First: Only persons or companies that can show adequate financial responsibility should be allowed to engage in the transportation business.

Second: Transportation has long been recognized as a public necessity and no new transportation service should be established, nor should any established service be abandoned, unless it can be shown that it is in the public interest.

Third: Just and reasonable rates and fares must be determined, published and observed. Discrimination and undue prejudice in either rates or service should be prohibited.

These are the fundamental requirements of the regulation which govern the railroads. The popular idea of the regulation of highway motor transportation is comprised of several parts: (1) The regulation of size, weight and speed of the vehicles, (2) the payment which should be made for the use of the highway, (3) the hours of labor and working conditions of the men employed on the vehicles and (4) the proper regulation of the service and charges of carriers for hire. Laws regulating the size, weight and speed of motor vehicles in each state are already in existence, but the requirements are different in almost every state and should be made uniform.

### Oversized Vehicles Reveal

#### Motor Industry's Shortsightedness

Efforts are constantly being made in the different states to increase the length, weight and speed of the big commercial vehicles that are permitted on the highways. In some states tractors and motor trucks are allowed to haul two trailers with a combined over-all length of 85 feet and a gross weight of 40 tons and more.

I question the wisdom of operating trains of two and three big motor trucks and trailers on the highways that are primarily constructed and maintained for the use of the general public. The efforts to secure permission to operate these trains of big commercial vehicles seem to me to be short-sighted. There is evidence on all sides of a growing resentment on the part of the public against the big, high-speed commercial vehicles and the way they are operated.

The operation of commercial vehicles on the public highway is not a vested right, but a privilege which the public can withdraw at any time. I believe that the manufacturers and operators of commercial vehicles should themselves take steps to limit the size, weight and speed of commercial vehicles so as not to interfere with the general public in their use of the highways rather than wait until an aroused public sentiment results in legislation being enacted that will restrict and perhaps prohibit the development and operation of highway transportation.

With respect to the payments which should be made for the use of the highways, motor vehicles should be divided into two classes. The first should include only

\* Abstract of an address delivered at Hartford, Conn., on February 11.



the private passenger automobile. The other would include all vehicles using the highways for business purposes, that is, all motor trucks and all motor buses and other vehicles transporting passengers for hire.

#### **Private Motorists Subsidize Commercial Operators**

It is frequently stated that in some states the registration fees and gasoline taxes paid by motor vehicles fully support the construction and maintenance of the highways, but an analysis will readily show that even in those states it is the registration fees and gasoline taxes paid by private automobiles that really support the highways. In most states the registration fees paid by commercial vehicles are so low that private automobiles and the state governments are, in effect, subsidizing the operation of commercial vehicles.

There is a great diversity of opinion as to the proper payment which commercial vehicles should make for the use of the highways. The annual registration of a three-ton truck in Massachusetts is \$19.50. In North Carolina it is \$900. There can be no question but what either the Massachusetts fee is too low or the fee in North Carolina is much too high. Our New England Transportation Company operates a type of tractor and semi-trailer weigh 18,500 lb. with a load capacity of 21,500 lb. or a gross weight when loaded of 40,000 lb. It costs \$60 to register this tractor and trailer in Massachusetts and \$592.50 to register the same vehicle in Connecticut.

In my opinion, each state should have an equitable basis of registration fees for private automobiles and another for commercial vehicles, which should represent their proportionate share of the cost of construction and maintenance of the highways. The registration fees paid by the larger motor trucks and motor buses should also cover all of the excess cost for the wider highways of heavier construction that would not be required except to provide for that class of commercial vehicles.

There are many different opinions as to this excess cost of construction and maintenance. Some interests claim there is no additional expense. Opinions vary to the other extreme that the cost of the present highways is about double what it would be if no provision had to be made for big commercial vehicles.

#### **How Divide Road Expense Between**

##### **Private and Commercial Uses?**

The most common sense view that has come to my attention is: That the depth of the present standard road is about one-third greater than would be necessary if the use of the highway was confined to private passenger automobiles; that it has been necessary to increase the width of the standard lane of road from eight to ten feet to provide for the wide commercial vehicles; and that it has been necessary to establish highways in many places with three and four lanes to adapt them for the operation of both private automobiles and large commercial vehicles. The latter is particularly true on hills where, because of the slow speed of the large commercial vehicles when going up a grade, additional lanes are required for the safety of other users of the highways.

Private passenger automobiles are between five and six feet wide over-all with a maximum weight of about 6,000 lb. The big motor buses operated at present are 8 ft. wide over-all, 33 ft. long and weigh approximately 13 tons. Motor trucks and trailers are generally allowed a maximum body width of 8 ft. with a maximum over-all width across the tires of 8 ft. 6 in. The maximum over-all lengths allowed for a truck and

trailer vary in the different states from 40 to 85 ft. It has never seemed to me that with this information before him anyone could seriously contend that wider highways of heavier construction are not required by the operation of these big commercial vehicles weighing 40 tons and more.

The states that have heretofore had such low fees for the registration of commercial vehicles, that it cost but little more to register a commercial vehicle than a private automobile, are fast recognizing the fact that commercial vehicles have not paid a proper amount in the past for the privilege of using the highways for business purposes.

#### **License Plate Reciprocity for Trucks Should Go**

Then there is the reciprocity of registration to be considered. Reciprocity is a privilege that was originally established to permit private automobiles to use the highways of other states for a limited time without charge. It was never intended to apply to commercial vehicles using the highways for business purposes. Reciprocity of registration is not extended to motor vehicles transporting passengers for hire and these vehicles must be registered in each state in which they operate. For some reason there has been no similar requirement for motor trucks.

Some representatives of the automotive industry claim that the present full reciprocity for motor trucks should continue—an arrangement which permits vehicles that are operated in several states being registered in the state having the lowest registration fee. The use of the highways for private gain is a public franchise and when a commercial vehicle operates in a state it makes use of the public's investment in the highways of that state. The registration paid by a commercial vehicle is only a tax for the privilege of doing business in the state and is similar to the taxes paid by every other business for similar privileges. Every commercial vehicle using the highways for business purposes whether it transports passengers for hire or transports freight, should pay a registration fee in each state in which it operates.

If motor trucks registered in one state are to be permitted to do business in another state without taxation, then the same privilege must be extended to railroads and every other business incorporated in other states and our present system of state taxation must be revised.

#### **Long Hours, Low Wages in Highway Transport**

Perhaps the most unfair competitive condition that exists is the lack of any regulation governing the hours of labor and the working conditions of men operating commercial vehicles on the highways, when those same features are prescribed by law for men employed on railroad trains and on board vessels.

This unfair competitive condition has been aggravated during the present depression when, because of the surplus of labor, men have been willing to work long hours and for low wages. This condition has permitted the operation of a great deal of highway transportation that would not otherwise be possible. It is creating unemployment in the other forms of transportation and unless corrected must eventually break down the high standard of working conditions that have always existed in the transportation industry.

During the present depression it is not unusual for two men to operate a truck night and day for a week or more, one man driving while the other obtains such rest as he can while the truck is in motion, either sitting on the seat or reclining on an improvised berth in the

body of the truck. Accidents resulting from drivers of commercial vehicles falling asleep from utter exhaustion, are constantly increasing and endanger the safety of all users of the highways.

My remarks so far have related to the regulation of all motor vehicles irrespective of the purpose for which they are operated. We now come to the regulation of the business of transporting freight and passengers on the highways for hire.

The requirements for the proper regulation of passenger carriers operating on the highways are comparatively simple. Public interest requires that motor buses should be operated on definite routes and on regular schedules. The regulation of passenger carriers should be uniform in all states and similar regulation should govern carriers operating interstate service.

Certificate of public convenience and necessity should be required. Passengers fares should be published and be subject to the approval of the regulating authorities.

The regulation of motor trucks operated for hire involves a question broader than the mere consideration of its effect upon individual truckmen or shippers. If motor truck transportation is to be operated on a sound economic basis, as it must be if the public interest is to be served, it must be treated as an industry rather than the individual truckmen who comprise that industry. Already motor companies are being consolidated. Associations are being formed to combine and coordinate the activities of individual truckmen to eliminate duplication of service. It is probable that motor truck transportation will develop as did railroad transportation.

There have been frequent attempts to distinguish between the common carrier and the so-called contract carrier, but to be successful any system of regulation must cover all carriers for hire operating on the highways.

#### All Carriers for Hire Should Be Regulated

Unless all carriers for hire are regulated, there will be no common carriers. The experience of the states which have enacted regulation of common carriers has demonstrated that separate companies can and will be established to assemble, forward and distribute freight. These companies in turn employ contract truckmen to provide the actual transportation.

As the first step in regulation, I believe that all motor truck carriers operating on the highways for hire should be licensed in each state in which they operate, and that an adequate franchise tax should be paid by all those to whom licenses are issued. A license should be issued only when the applicant has satisfied the regulating authority as to his suitability and experience; his financial responsibility; the probable permanence and quality of the service to be operated; and that adequate surety or insurance has been provided for the protection of the public.

Having been licensed by the state or states in which he proposes to operate, the carrier for hire should be subject to regulation of state and interstate authorities in the following respects:

First. The supervision and approval of satisfactory service and safety of operation.

Second. The fixing or approving of just and reasonable rates and charges which will be published and adhered to.

Third. A system of uniform accounts and the filing of such annual or other periodic reports as the state or interstate commissions may require.

The regulating authorities should also be empowered to supervise and regulate carriers for hire operating on

the highways in all other matters affecting their relationship with the public to the same extent and in the same manner that public utilities generally are regulated.

#### Rail Rates Should Not Be Considered in Truck Regulation

I do not have in mind that there should be any fixed relationship between the rates and charges for motor truck transportation and railroad rates. Rather, the just and reasonable rates and charges for motor truck transportation should be determined solely from the standpoint of motor truck operation.

The motor truck rates and charges can be based on per hundred pounds, per ton, per truckload, per hour, per day, or per truck-mile, to cover any and all of the various requirements so that motor truck transportation for hire can retain its present flexibility. It is probable that when regulation has become a fact, each commission will publish tariffs which will contain the rates and charges of all motor trucks operated for hire over which the commission has jurisdiction.

The purpose of regulation is to establish equal opportunity and fair competition between the different forms of transportation and to insure that the public will all pay the same rates for the same service. Regulation is so fair and so essential to the proper development of our national system of transport that when anyone objects to all forms of transportation being regulated, we must believe that he seeks an advantage which he does not want his competitors to enjoy.

## Reduction in Extra-Fare Services Recommended

WASHINGTON, D. C.

SOME reduction in the number of extra-fare passenger trains in the East in order to make available more services for which no extra fare is charged, but with the idea that this would not greatly reduce the revenue derived by railroads from extra-fare trains, is recommended by Examiners A. S. Worthington and M. L. Boat of the Interstate Commerce Commission in a proposed report made public on February 12 on the investigation instituted by the commission with a view to determining whether such extra fares are reasonable and otherwise lawful. The evidence of record indicates, they say, that "the public interest will not be adversely or unreasonably affected by the maintenance of extra fares between points where now applicable if reasonably adequate service without extra fare is available," and "as a portion of the traveling public desires extra-fare service which affords unusual and outstanding features not essential to reasonably prompt and comfortable transportation, the carriers should have the opportunity to furnish it. Such service, however, should not displace the regular service or hamper the normal development of the service as the needs of the public may require."

Findings by the commission are recommended that the charging of extra fares for combination service, i.e., service which requires transfer enroute, is not justified, and also that the practice of charging extra fares for through service is unreasonable "except when a definitely superior service, namely, such a service as is not generally furnished at the regular fare, is provided, and when the number of such extra fare services does not exceed 33 1/3 per cent of the total number of through



services on trains carrying equipment of the standard generally in use and operated upon reasonably fast schedules at equally convenient hours over the same routes between the same points."

A finding is also recommended that relief from the aggregate-of-intermediates provision of Section 4 of the interstate commerce act has not been justified and that the applications of the roads for such relief should be denied. It is stated that the record does not afford a basis for finding that the lower measure of extra fares to and from St. Louis than obtains to and from Chicago, or the failure to maintain extra fares to and from Washington and Baltimore while maintaining such fares to and from Newark, results in undue prejudice or preference. The examiners find that while speed or luxury service, and in most instances both, are considered in establishing extra fares, there is no fixed rule of general application governing the measure of such fares on a mileage basis or otherwise and they are based upon what, in the judgment of the traffic officers, the traffic will bear. Some extracts from the report follow:

While the proposed finding does not specifically condemn the 28-hour "standard time basis" employed in fixing extra fares between New York and Chicago, this basis is admittedly arbitrary, of somewhat ancient vintage, and not in keeping with the present average running time of trains between these cities, two-thirds of which trains have schedules of less than 28 hours and over one half of which have schedules of less than 25 hours.

Extra fare revenue for service between New York and points in central territory is derived principally for service on trains having the fastest schedules. For example, while the Central maintains 30 extra fare services, 92 per cent of its extra fare revenue is from fares on four of its fastest trains. It would, therefore, appear that while the proposed finding would have the effect of materially curtailing the number of extra fare services between New York and points in central territory, it would not seriously affect the extra fare revenue, as the respondents under this finding could and undoubtedly would continue to operate their fastest trains as extra fare trains.

The great body of extra fare travel is between New York and Chicago or between those cities and points intermediate thereto as to which standard running time has been established, chiefly over the lines of the New York Central and the Pennsylvania, between the cities named, and the evidence was directed principally to this feature of the proceeding.

Between points in respect of which standard running time has not been established, the element of competition between rival carriers appears to be the most important element bearing upon the extra fare adjustment. This is illustrated by the absence of extra fares for de luxe service on the Pennsylvania between Washington and Baltimore, on the one hand, and points west thereof, on the other, which is due to the action of the Baltimore & Ohio in establishing and maintaining similar service without extra fares. A similar situation where the train schedules of a carrier with those of another carrier bring them into competition is found at Pittsburgh.

While the claim is made that the character of the luxury features provided is graded according to the relative speed of the trains which in turn governs the amount of applicable fare, it is not shown that the character of equipment or the feature service is in all instances superior to that usually provided on the best trains between numerous other important cities on which no extra fares are charged.

That the number of through services provided (between New York and Chicago) is adequate is beyond question. Of these services two-thirds are subject to extra fares. Of the 59 services provided by the Pennsylvania and the Central, 46, or 78 per cent, are subject to extra fares. The extra fare services are scheduled at frequent intervals throughout the day. There is no westbound service without extra fare on trains leaving New York between 12:30 A. M. and 11:50 A. M. Eight extra fare services are scheduled between these hours.

The eastern lines state that if the commission approves the maintenance of the existing basis of fares, they propose to increase the number of services which would not be subject to extra fares by eliminating all such fares now applicable to combination service, except where the passenger uses a train as to which an extra fare is applicable from or to the transfer point. Inasmuch as the existing basis is intended to

result in the application of extra fares to all service, either through or combination, which affords passage in less than standard running time, the effect of the proposal would be to remove all extra fares from the combination service and to that extent it appears that the existing 28-hour time basis award of 1897 would be abandoned. As a matter of fact, as to combination service, it is not strictly observed now.

The total net extra fares of the lines which operate trains between New York and Chicago in 1928 amounted to \$6,373,620.74. Of that amount 59 per cent accrued to the New York Central System Lines, 40 per cent to the Pennsylvania, and one per cent to all other eastern carriers charging extra fares. The net revenues of the Central and the Pennsylvania from this source in that year were 40 per cent and 38 per cent, respectively, greater than the corresponding revenues in 1923.

Respondents contend that reduction in, or elimination of, extra fares would have a serious effect upon their revenues. The answers to the questionnaire do not indicate the amount of such revenue derived from the operation of individual trains except in instances where the respondent carrier operates a single extra fare train or a small number of such trains. The eastern lines state the fastest extra fare trains are the most heavily patronized and that by far the greatest part of the extra fares is collected for through travel to the more distant points. Taking the Central, for example, this revenue is derived principally from its fastest trains which carry the highest extra fares. In the year 1929, approximately 70 per cent, or about \$2,500,000 of such revenue, was collected on the Twentieth Century Limited, and 10 per cent on the Lake Shore Limited, on which fares \$9.60 and \$6 apply from New York to Chicago and Cleveland, respectively, 7 per cent on the Cleveland Limited on which the fare from New York to Cleveland is \$3.60, 5 per cent on the Detroit, which carries a fare of \$2.40 from New York to Detroit, and most of the balance on the remainder of the trains which carry through equipment. Less than two per cent was collected on combination trains.

The traveling public was not generally represented at the hearings. Representatives of a few important cities testified with respect to the service in which they were particularly interested. For the most part they subscribed to the principle that extra fares for especially fast and de luxe services are justified. No witness appeared to testify as a passenger who had paid extra fares.

The only territory in which the practice of charging extra fares has developed on a widespread scale is that lying between New York, on the one hand, and St. Louis and Chicago, on the other, in which the so-called time basis of extra fares is observed. In this important respect the situation in this territory differs materially from the other situations under investigation. Over a period of years the number of daily services between New York and Chicago to which extra fares apply has increased from one train in each direction over the Pennsylvania and the Central to a total of 60 through services. Of these services 17 are over the Pennsylvania and 30 over the Central system and its subsidiary, the Michigan Central. The extra fare service between these cities has been expanded to the point where it represents two-thirds of all available through services over all routes and an even greater proportion of those services if the comparison is restricted to the Pennsylvania and Central. A similar situation exists with respect to the through service between New York and the eight other time points as to which there are on an average 25 through services daily, two-thirds of which are also subject to extra fares.

With the expansion of extra fare services in this territory there has been a steady increase in the speed of extra fare trains resulting in shorter schedules which automatically increased the amounts of the fares. Other effects of the time basis are the application of extra fares to coach service and to all combination service.

As heretofore stated, one of the principal reasons advanced by respondents in support of charging extra fares is that passengers are afforded a more comfortable journey where such fares are charged. While there is merit in this contention where a through journey is completed on a single train it loses force in instances where a transfer en route from one train to another is required, in some instances such transfer requiring long waits and a change of cars at inconvenient hours.

THE CENTRAL OF NEW JERSEY has given a contract to the United Dry Dock Company for rebuilding the steamer *Sandy Hook* which was damaged by fire last October. Details of the plan to be followed in the reconstruction of the ship will be announced later. Many new features will be added.



# 15a Hearings Concluded

National organizations of all interests concerned  
with railroads favor new rate-making rule

By Harold F. Lane

Washington Editor, Railway Age

WASHINGTON, D. C.

THE most complete example of harmony ever witnessed between the national organizations representing the railroads and the other interests most directly associated with them, including the regulating authorities, shippers, security owners, labor and the railroad supply industry, has just been afforded by their endorsement of the Interstate Commerce Commission's proposal for the substitution of a new flexible rule of rate-making for the provisions of Section 15a of the interstate commerce act.

Although some differences of opinion have appeared as to the exact language to be used, and as to the extent to which the commission's valuation work under Section 19a should be discontinued, unanimous endorsement has now been given to the principle of H. R. 7117, as drafted by Commissioner Eastman, including retroactive repeal of the recapture provisions and the adoption of a declaration of legislative policy directing the commission to exercise its authority over rates to the end that, so far as practicable, the revenues will "constitute a sufficient basis for the maintenance of a national system of railway transportation at all times adequate to the needs of the public."

General accord on this plan was expressed at the hearing before the House committee on interstate and foreign commerce on February 11 on behalf of the National Association of Owners of Railroad and Public Utility Securities, the Railway Business Association, the railway labor organizations and the American Electric Railway Association, following earlier statements on behalf of the Interstate Commerce Commission, the National Industrial Traffic League, the National Association of Railroad and Utilities Commissioners, the Association of Railway Executives, and the American Short Line Railroad Association.

## Recapture Cloud Affects Security for Loans

In addition, S. Wallace Dempsey, former Representative from New York, advocated repeal of the recapture provisions as the fourth step in the series of efforts which have been made to improve the railroad situation, including the emergency increase in rates, the voluntary wage reduction and the organization of the Reconstruction Finance Corporation. "This would supplement in a splendid and effective way these efforts to help the railroads to give good transportation service in this time of depression," he said, after asking the committee if it was willing to make all these other efforts futile by allowing the "cloud" of \$361,000,000 of estimated recapture claims to hang over the railroads at a time when they are to be required to give adequate security for loans from the Finance Corporation. "They cannot approve loans without full and adequate security," he declared. "I don't think this is a lien. I don't think it can be collected in equity. The trust has failed. But if Congress is to be consistent in carrying out the purposes of the Finance Corporation to aid as all are trying to

aid in this situation, it is absolutely essential to dispel this cloud of \$361,000,000."

Complete unanimity was expressed not only as to the impracticability of 15a, but as to the danger of repealing it outright without replacing it with some form of new "assurance." It is true that R. C. Fulbright, speaking for the N. I. T. L., and John E. Benton, for the state commissioners, indicated that they would have been satisfied to return to the rule of Section 1, but they agreed that in the present situation Congress ought to say something to reassure the investors. Apparently, however, the "general railroad contingent fund," which it has been held belongs neither to the shippers, nor to the government, is the only one that stands to sacrifice anything in the arrangement.

If the railroads stand to lose the percentage yardstick for the statutory extension of their constitutional rights to the groups as a whole it is at least one on which they have failed to collect much. Although it is generally believed that the 1920 rate increase was probably somewhat greater than it would have been without the backing of the law, the railroads certainly never collected the full amount it was intended to produce. Moreover, if the proposed new rule would remove a specific percentage of "assurance" it also would remove what the commission has construed as a limit—a permissive limit not balanced by a guaranty.

There has been no concession on the part of either the railroads or the security owners that the commission could not have allowed somewhat higher rates than it did during the "boom" period, but apparently there has been some appreciation that, as it was expressed by Frank W. Noxon, "we have quarrelled over the method of measuring railway income while the income was drying up."

## Commission Opposes Repeal of Valuation Act

The last witness to be heard by the committee, however, Commissioner E. I. Lewis, who has been in general charge of the valuation work for nine years, indicated a belief that perhaps too rapid progress was being made toward a state of harmony on the idea of getting rid of the controversial features of valuation, when he voiced the unanimous opposition of the commissioners to the proposal to repeal Section 19a outright, made by Alfred P. Thom, general counsel of the Association of Railway Executives.

Commissioner Lewis brought in a further amendment to Mr. Eastman's suggested modification of paragraph (f) of Section 19a, to authorize the commission to maintain an organization to keep itself informed of current changes in costs and values of railroad properties so that it may at all times have available the information necessary to produce a valuation. Without recapture work, he said, this would make it possible to cut the valuation staff in two. He said the further amendment had been approved by ten of the eleven com-

missioners but that Commissioner Mahaffie thinks the changes from the language of the bill are unnecessary.

The hearings which have been in progress since January 19 were concluded on February 12 and the drafting of a bill to be reported will be taken up in executive session as soon as the printed record of the testimony is available. While some disagreements among committee members are anticipated, Chairman Rayburn has indicated that favorable action on the principle of the bill is expected soon.

#### Latest Text of New Rate-Making Rule

The latest form of the proposed rate-making rule is that submitted by Commissioner Eastman on February 10, combining language of the original bill with that suggested by Mr. Thom, as follows:

(2) In the exercise of its power to prescribe just and reasonable rates, the Commission shall give due consideration, among other things, to the present and prospective needs of the public for adequate and efficient transportation facilities and service, to the effect of rates on the movement of traffic, and to the necessity, in the public interest, that the carriers furnish transportation service at the lowest rates consistent with adequate service and adequate provision for the transportation needs of the public. The fact that revenues fall with decreasing traffic in times of economic depression or rise with increasing traffic in times of economic prosperity shall not necessarily be regarded as a reason for increasing or reducing rates, as the case may be; but it is hereby declared the duty of the Commission to exercise its authority over rates to the end that, so far as practicable, the revenues derived therefrom will, under honest, efficient, and economical management and reasonable expenditures for maintenance of way, structures, and equipment and over a reasonable period of years, constitute a sufficient basis for the maintenance of a national system of railway transportation at all times adequate to the needs of the public: *Provided*, That the Commission shall have reasonable latitude to modify or adjust any particular rate which it may find to be unjust or unreasonable, and to prescribe different rates for different sections of the country.

#### Eastman Calls Recapture Unfair

To attempt now to enforce recapture would strike a "further blow at the economic condition of the country," said Commissioner Eastman in his concluding statement before the committee on February 10. "It seems unfair because a carrier has earned more than 6 per cent in one or two years to penalize it when it has not received a fair return in other years and to try to collect it at a time when the carriers are poverty-stricken."

If a case for recapture can be made at all, he said, it can be made as to the railroads controlled by the United States Steel Corporation, and if they could be segregated and dealt with alone he would not be prepared to argue for a repeal, but all railroads must be dealt with under some rule of general application.

As to the roads serving the Pocahontas region, which represent about 26 per cent of the total estimated recapture liability, Mr. Eastman pointed out that they are largely dependent upon coal traffic and that they have been prosperous in recent years because of the unusual demand for the coal of their territory, much of which moves downhill and can be handled under unusually favorable operating conditions. However, it is by no means certain that their situation will be as favorable in the future as in the past. The demand for coal has been greatly curtailed and it is almost inevitable that there will be a demand for a reduction in rates. Also, recapture would have a special effect on the Chesapeake & Ohio, the corner-stone of the Van Sweringen system. Mr. Eastman said he held no brief for the Van Sweringens but that the resources of the Chesapeake & Ohio had been largely used to put that system together and it

had been a drain on that road. If a claim for \$47,000,000 should be enforced against it it would have no way to raise the cash except by an issue of bonds which would add nothing to its assets and "it seems to me clear that this would have a very disturbing effect on the whole Van Sweringen system and might be the last straw for the Allegheny Corporation."

He also pointed out that to enforce a claim for \$19,000,000 against the St. Louis-San Francisco now "might easily be the straw to drive it into receivership" and he referred to the estimate of \$15,000,000 for the Southern although it earned last year only about two-thirds of its fixed charges.

"It is not a bad thing for the country that certain railroads should be able to earn large profits," he continued, "because there are large hazards in the railroad business and they ought to be balanced by some opportunities for large profits or investors will not be attracted."

"The railroads are in an extremely critical situation and while I believe the dangers can be overcome it is going to take a great deal of co-operation on the part of everybody. In our opinion it would not be in the public interest to attempt to proceed with the enforcement of these recapture provisions."

Returning to the discussion of the rate-making rule, Commissioner Eastman pointed out that when he said in his previous testimony that much the same rates would have been made in recent years without 15a he had not meant that the commission had disregarded its duty under the law, but that it had often felt, as in the 15 per cent case, that higher rates would not have had the effect of increasing revenue. He said that if there had not been the slump in passenger traffic he thought there was no doubt that the freight rates would have produced a fair return.

#### Adequate Rates Necessary Even Under Government Ownership

"If the railroads cannot get a fair return," said Mr. Eastman, "public ownership would be the only answer and even then I think the industry ought to pay its way and not be a burden on the taxpayers. Even if we had government ownership the necessity for adequate rates would remain. I think the commission would recognize the factors specified as to be given due consideration but the commission is a changing body and the investors want some assurance. I see no reason why Congress should not specify in the law its policy in simple terms so worded that there would be no danger of undue emphasis on any one consideration. If a large number of receiverships should come about I am not sure that the situation could be overcome. The railroads once went through a period of many receiverships but the country was growing rapidly then and now it is likely to grow much less rapidly. A large number of receiverships would be the last straw so far as private ownership is concerned, although I am not wedded to that theory myself."

#### Rule Intended to Promote Rate Stability

Asked by Representative Huddleston whether the new rule would bring a higher rate level than otherwise, Mr. Eastman said he was by no means certain that it would; that he believed we would "not be much bothered with exorbitant rates for some time to come," and that it might have the effect of reducing rates, but that it was "not intended as an instrument to raise or reduce them." He said the commission believed that rates ought to be maintained on a more nearly stable basis, that carriers



ought to be allowed to earn in good times enough to balance times when traffic is light.

In response to a query as to the influence of the value of service in rate-making, Mr. Eastman said there is a question as to the extent to which that principle can be maintained in the face of truck competition because the trucks are competing for the high-value traffic on which rates are well above cost and it may be necessary to reduce rates on high-value commodities and compel some reconstruction of the rate structure which will place a greater burden on the long-haul traffic and the low-value basic commodities.

#### Commission Estimates of Return on Valuation by Years

Mr. Eastman submitted a statement compiled by the Bureau of Statistics showing the return earned by the railways in the years 1921 to 1931 on three bases, investment, I. C. C. primary value, and 1920 rate case value adjusted. He said this did not compare exactly with the figures submitted by S. T. Bledsoe, chairman of the executive committee of the Atchison, Topeka & Santa Fe, which were published in the *Railway Age* of February 6, on the basis of the Ex Parte 74 findings plus net additions and betterments. The highest percentage of return shown by Mr. Bledsoe's table was 5.45 per cent in 1926, while the commission's table shows 5.56 per cent for that year on the Ex Parte 74 value and 5.96 per cent on primary value. Mr. Eastman also submitted tables for the eastern, western and southern groups showing the eastern roads as having earned 6.08 per cent on the rate case value in 1926 as well as 6.04 per cent in 1929, while the southern roads showed 6.23 per cent in 1925 and 5.74 per cent in 1926. The highest return shown for the western roads was 5.06 per cent in 1929. The valuation figures shown in the commission table are somewhat lower than those shown in Mr. Bledsoe's table because they include deduction for depreciation because, like automobiles, all railroad property is "used." On the basis of "primary value" a return in excess of 5¾ per cent is shown in 1926 and 1929. The table as submitted by Mr. Eastman for the total of all groups is given herewith.

#### Labor Organizations Endorse H. R. 7117

The statement on behalf of railroad labor was presented by A. J. Lovell, national legislative representative of the Brotherhood of Locomotive Firemen and Enginemen, who said he was appearing also for the legislative representatives of the engineers', conductors' and trainmen's brotherhoods and the maintenance of way and signalmen's organizations, and indirectly for

the 21 standard labor organizations under instructions from D. B. Robertson, chairman of the Railway Labor Executives' Association.

"We have just come back from Chicago after making a direct contribution of \$250,000,000, or 10 per cent of our wages, including mine, to the welfare of the railroad situation," he said. "The Interstate Commerce Commission has also authorized a gratuity of \$125,000,000. We have never before appeared in a rate-making case but we now think we have a right to be here. We have never believed that 15a was of any use. It is a beautiful fine-spun theory but fine-spun theories often don't work and you have had twelve years' experience trying to make this one work." The letter from Mr. Robertson asked Mr. Lovell to make it clear that "we concur in the views expressed by Mr. Eastman and definitely favor H. R. 7117, provided it is amended as recommended by Mr. Eastman to provide for retroactive repeal of recapture and the return of the money to the railroads that have paid."

#### Security Owners See Need for New Law

Fred N. Oliver, general counsel of the National Association of Owners of Railroad and Public Utility Securities, told the committee that Section 15a has been useful in attracting billions of new capital into the railroads but the rate-making provisions have failed to accomplish the purposes for which they were enacted.

He also pointed out that it would be difficult and in many cases impossible for the railroads to pay back-recapture. They may have to borrow from the Reconstruction Finance Corporation to meet imperative existing obligations, and "it would seem anomalous for the government, through one agency, to require recapture payments, and through another agency, to furnish funds with which to meet other pressing obligations."

Some extracts from Mr. Oliver's statement, follow:

#### Three Causes for Present Railroad Situation

There are three causes which stand out as being principally responsible for the present railroad situation. The first, of course, is the economic depression. The second is unrestrained and unregulated competition, and the third, in our opinion, is restrictive legislation and regulation.

Section 15a was devised for the purpose of restoring the confidence of the public in railroad investments or, in other words, of restoring railroad credit. It may be said that the railroads have expanded sufficiently to take care of transportation needs for years to come, and that, therefore, railroad credit is not such a serious matter for the immediate future. This overlooks the important fact that the immediate future may hold in store marked changes in the manner in which transportation is conducted. We have reference to

**Net Railway Operating Income, Investment, I. C. C. Primary and 1920 Rate Case Values, and Rates of Return: Class I Steam Railways, Including Switching and Terminal Companies—1921-1931**

	Net railway operating income for calendar year	Investment in road & equipment at end of year <sup>2</sup> \$ (Millions)	I. C. C. primary values brought down to end of year indicated <sup>3</sup> \$ (Millions)	Value taken by I. C. C. in increased rates 1920 <sup>4</sup> \$ (Millions)	Rate of return on		
					Investment, Per cent	I. C. C. primary value, Per cent	1920 rate case value, Per cent
1921	\$615,945,614	19,965	17,905	19,388	3.09	3.44	3.18
1922	776,880,593	20,096	18,036	19,519	3.87	4.31	3.98
1923	983,736,225	21,041	18,981	20,464	4.68	5.18	4.81
1924	986,717,759	21,745	19,685	21,168	4.54	5.01	4.66
1925	1,138,632,320	22,222	20,162	21,645	5.12	5.65	5.26
1926	1,233,003,087	22,753	20,693	22,176	5.42	5.96	5.56
1927	1,085,141,596	23,170	21,110	22,593	4.68	5.14	4.81
1928	1,194,487,806	23,503	21,443	22,926	5.08	5.57	5.21
1929	1,274,595,403	24,025	21,965	23,448	5.31	5.80	5.44
1930	885,011,325	24,311	22,251	23,734	3.64	3.98	3.73
1931 <sup>1</sup>	547,800,000	.....	.....	.....	2.25	2.46	2.30

<sup>1</sup> Income estimated for year from 11 months returns. Rates computed on 1930 values.

<sup>2</sup> Accounts 701 and 702, Material, supplies and cash. Accrued depreciation deducted. Proprietary companies included after 1922.

<sup>3</sup> Based on I. C. C. primary values adjusted to date by adding net increase in book value, less increase in accrued depreciation each year, plus an allowance for working capital. Figure as of Dec. 31, 1930, determined from study of values and subsequent investment for individual roads. Total for prior years in this table obtained by subtracting annual change in investment computed from preceding column. Adjustments for parts of systems in Canada not made in this table.

<sup>4</sup> Value of 1819 billions in 58 I. C. C. 220, 229, adjusted for Class I railways and brought down to date as in preceding columns.



the feeling now entertained by many railroad executives and others that competition from other transportation agencies will require large expenditures for rearrangements of terminal facilities, may require, to some extent, different types and kinds of equipment, and many other changes which cannot at the present time be foreseen.

#### Principle of H. R. 7117 Approved

Taken as a whole, Section 15a has undoubtedly served a useful purpose. By giving the commission a definite yardstick it went far to restore the confidence of investors and made possible successful operations under private ownership. In our opinion, the rate making provisions, however, have failed to accomplish the purpose for which they were enacted. The security owners urge the committee to accept rate-making provisions similar to those in H. R. 7117.

#### Congressional Declaration as to Rate Level Necessary

It seems to the security owners that a declaration of policy from Congress is essential, when consideration is given to the general rate level. If Section 15a is repealed and only the general rule that rates shall be just and reasonable is given to the commission as a guide, the situation will be the same as it was prior to 1920. At that time there was some doubt among the members of the commission themselves as to what, if any, consideration should be given to the revenue condition of the carriers. The rate-making section of the old act was written around the individual rate. It did not tend to encourage consideration of the effect of these rates in their aggregate upon the individual carriers or upon the carriers as a whole.

#### Relationship of State and Interstate Rates Involved

There is another strong factor which in our opinion requires some affirmative duty imposed on the commission as to the general rate level; there is needed an effective provision for control of the relationship of the intrastate to the interstate rate structure based upon carrier revenue. There may be a division of opinion as to whether or not without some such general provision the commission would have power to require the state rates to bear their proportion of the transportation burden. In our opinion, however, the elimination of any general rule might render ineffective federal control. It is doubtful whether Section 13 standing alone would furnish sufficient power to the commission to remove the broad discrimination against interstate commerce without some revenue provision in Section 15a.

#### Primary Valuation Should Be Completed and Preserved

Concerning the much-debated question of valuation, the security owners favor the commission's proposal as contained in H. R. 7117. As we understand it, the commission does not propose to repeal Section 19a but merely to amend paragraph (f). This would mean that the primary valuations would be completed and preserved but the commission would not be required to make detailed revaluations over and over again. The commission would require the carriers, however, to furnish information as to property changes and the commission would check these returns and determine whether they are accurate. The statement is made that since economic laws are alone responsible for the amount of freight charges which can be assessed the valuations are of no use in the fixing of rates. This is true insofar as it relates to individual rates. We are not so sure that this is absolutely accurate when it comes to the rate level as a whole. There at least should be some general idea of the value of the properties and there should at least be some relationship between the earnings of the carriers and a fair return upon that value.

#### R. B. A. Urges Maintenance Reserves

Frank W. Noxon, secretary of the Railway Business Association, said: "We favor the retroactive repeal of recapture. We favor eliminating from the rule of rate-making all reference to the investors' interest. We favor repeal of Section 19a, doing away altogether with valuation, and we oppose the substitution of any kind of rate base. We recommend that in one form of language or another you provide simply that the objective to be aimed at by the Interstate Commerce Commission in the regulation of rates shall be adequate transportation facilities.

"The damage which the railroads have suffered from

the recapture provision cannot be measured. It arises from the requirement that recapturable incomes shall be computed annually. Under that arrangement the railways have been unable to spend on maintenance in dull years sums earned in good years but not spent. The resulting instability has been a great hardship. H. R. 7117 not only repeals recapture but explicitly directs the commission to spread its measure of earnings aimed at in rate regulation as an average over a period of years. If railways were free to create maintenance reserves for use in lean years the effect would be to relieve our industry, both plant and payroll, of periodical idleness alternating with sudden pressure which overwhelms capacity. . ."

#### Railway Purchases 42 Per Cent Less Than in 1926

Mr. Noxon presented an estimate of total railway purchases, combining fuel and material and supplies charged to operating expenses with an estimate of the material used in capital improvements, showing a reduction from \$1,971,195,646 in 1926 to \$1,140,000,000 in 1931, a decrease of \$831,195,646, or 42.2 per cent. "That is the shrinkage in the business done by the railways with our industry 1931 under 1926," he said. "While passenger-miles dropped only 38.5 per cent, ton-miles but 30.4 per cent, and total operating revenue no more than 35.6 per cent, purchases sank 42.2 per cent. The reasons were, first, insufficiency of accumulated reserves; second, inability to arrange financing for improvements in advance in favorable years; third, fear to use either surplus or capital beyond the bare necessities of safe and satisfactory operation in a time of reduced traffic and earnings with uncertain prospects. It is obvious that any substantial progress toward a more even level of railway purchases throughout each decade will help everyone. It will tend to cut down the cost of railway replacements and additions with corresponding benefit to the public. At the same time railway purchases are so vast that the financial ability of the railroads to come into the market when general business is slack formerly acted and we believe would again act to postpone a depression, to mitigate its severity and to hasten re-employment."

#### Need of the User Should Be Emphasized

As I see it, your opportunity is to do something which will help divert the public mind from the security owner to the user of the facilities as the beneficiary of your rate-making rule. For twelve years, under Section 15a, the thought of all concerned has been focussed on the rights of the security-owner. Take fair return, valuation and the security owner's "rights" out of the picture, bring the user's need into the foreground, and you will greatly improve the prospects for successful cooperation among shippers, among carriers, and between shippers and carriers for effectuation of the new rate rule. You will stimulate and encourage the world of traffic to keep the question of adequate and progressive facilities systematically and continuously before them.

#### Status of Electric Railways Undetermined

C. D. Cass, general counsel of the American Electric Railway Association, pointing out that there has yet been no definite decision as to which electric railways are subject to the provisions of Section 15a, but that the commission has held that each must be considered separately, and that up to this time there has been no valuation of their property, said that if rate-making upon aggregate value and recapture of excess income are to be repealed, electric railways transacting business in interstate commerce should not be excluded from the new Section 15a but that Section 19a should be repealed *in toto*. If the recapture is not repealed *ab initio* the commission would have to hold a long series of 195 hearings

to decide which roads are excluded from the provisions of 15a and then further proceedings would be required as to their valuation and recapture status, which would open up an endless controversy.

#### Lewis Wants Valuation Continued

Commissioner Lewis in discussing valuation said that already the commission's people are busily engaged in examinations of applications filed by carriers for loans from the Reconstruction Finance Corporation, and find that one of the most valuable things available to measure the unencumbered equity in the

property of a carrier underlying a particular issue of its bonds offered as security for such loans is the valuation, as adjusted, while the Bureau of Finance is making this test also as a guide to the intrinsic value of corporate bonds at a time when the market value of railroad securities is unreasonably depressed.

Mr. Lewis' proposed amendment would include language providing that the commission "may keep itself informed of current changes in costs and values of railroad properties" in order that it may have available at all times information to correct its previous inventories, classifications, "and values."

## I. C. C. Fuel Hearings at New York

Additional evidence reveals practices of D. & H., D. L. & W.,

C. N. J., L. V., Erie and B. & O.

CONTINUING beyond the testimony reported in the *Railway Age* of February 13, the New York hearings in connection with the Interstate Commerce Commission's investigation of railway fuel practices (Ex Parte 104, part 1) next included the presentations of the Delaware & Hudson, the Delaware, Lackawanna & Western, the Central of New Jersey, the Lehigh Valley, the Erie, the Brooklyn Eastern District Terminal and the Baltimore & Ohio.

The testimony in general revealed that the foregoing railroads have adopted the policy of purchasing the grade of fuel coal they desire from mines on their respective lines or through brokers who control the routing of commercial coal shipments. Some witnesses admitted that a higher price than was offered by a non-shipper would not deter them from patronizing the shipper. The Lehigh Valley, for example, considers its desire to patronize shippers more important than a difference of five or ten cents a ton and a B. & O. witness admitted that his road would probably pay 15 cents a ton more to favor a shipper. The Central of New Jersey, on the other hand, while it desires to favor shippers if prices are equal, cited an order which it gave to a non-shipper whose price was five cents a ton under that offered by shippers. The D. & H. denied that any commercial traffic considerations entered the allocation of its fuel orders.

#### Delaware & Hudson

The Delaware & Hudson, P. E. Bast, fuel engineer, testified, uses both bituminous and anthracite but the road is now passing through a transition period during which locomotives are being equipped to burn straight bituminous; 40 per cent of the D. & H. locomotives are now so equipped. The reason for this change, Examiner C. W. Berry brought out, is the shift in the market which during recent years has brought a commercial demand for buckwheat anthracite. H. A. Empie, purchasing agent, later explained in this connection that the D. & H. locomotives were originally designed to burn anthracite because of the location of anthracite mines on the D. & H. and the railroad's ownership of these mines before the enactment of the commerce clause. With no commercial demand for buckwheat in those days the fuel coal used by the D. & H. was virtually a by-product of its mines.

This anthracite, Mr. Empie continued, is purchased on the basis of competitive bids received in accordance with the provisions of the Clayton Act; this is because the Hudson Coal Company and the D. & H. have common directors. Some anthracite is now purchased from off-line mines since the commercial demands became such that the on-line supply offered is inadequate.

Bituminous is purchased by the D. & H. on contract at prices which Mr. Empie described as being "fixed on the basis of what is fair." Traffic is not considered and one producer, who now has an order for 50,000 tons, ships no commercial coal over the D. & H. D. & H. contracts for bituminous include a wage clause which, in addition to the wage stipulation, calls for a revision of prices on the basis of "changed market conditions." Mr. Empie thought this latter would assure the D. & H. of a price as low as that afforded any other railroad buying the same coal but he had made no investigation to determine what other railroads were paying. I. C. C. Attorney M. C. List in this connection told the witness that the D. & H. "can get a great many lower prices if you keep in touch with this record."

Other D. & H. witnesses testified as to the distribution and accounting for fuel and the per diem arrangements on cars carrying fuel. It developed that the D. & H. has had coal stored in the open for five or six years. Mr. Bast admitted that there was a material loss in the fuel value of this coal but added that the cost of handling in and out of storage piles precluded the rotating of coal in such piles.

#### Delaware, Lackawanna & Western

Like the D. & H., the Lackawanna uses both bituminous and anthracite but it is rapidly retiring its anthracite-burning locomotives. Its anthracite requirements are purchased annually under Clayton Act bidding from the D. L. & W. Coal Company and about half of its bituminous is purchased from the Keystone Mining Company, the capital stock of which is owned by the Lackawanna. Prices for bituminous coal are fixed for the fuel year after conferences with dealers, the Keystone is allowed the same price as is paid other operators and Keystone mines are operated full time. (Some other mine-owning roads testified that it was their policy to operate their mines only to the extent that other operators in the same fields kept in production.



In discussing the prices which the Lackawanna fixes, Charles C. Hubbell, purchasing agent, said that it was his desire to arrive at a "fair price" which latter he further defined as a price that "is relative to the going prices." Attorney List in this connection observed that the D. L. & W., without inviting competitive bids, is getting bituminous coal at a lower price than that obtained by other railroads. As to reciprocity, Mr. Hubbell said that he confers with the traffic department on the allocation of orders for that portion of the requirements not satisfied by the Keystone Mining Company.

#### Central of New Jersey

Charles H. Stein, assistant to the president, was the Central of New Jersey witness; Mr. Stein has supervision over the allocation of fuel orders. The C. N. J., he said, relies mainly on service tests under operating conditions to determine the suitability of fuel for its use. In this manner a number of acceptable mines have been selected over a period of years and orders are allocated among C. N. J. shippers of commercial coal. Mr. Stein explained, however, that reciprocity does not enter Jersey Central fuel orders in the generally accepted sense; he frowns on reciprocity practices and has never talked reciprocity to a fuel coal seller. This road has had no fuel contracts since 1929 but buys spot coal from month to month.

In cross-examining Mr. Stein as to the manner in which prices are arrived at, Attorney List brought out that the C. N. J. does not stipulate that it receive a price as low as the same coal is sold to any other railroad. Despite the absence of such a stipulation, however, Mr. List told the witness that the record shows the Jersey Central to be getting coal cheaper than most roads. Only one road is thus far shown to have received lower prices, the Attorney added. Questioned as to the types of coal selected, Mr. Stein revealed that one grade of coal is used in westbound locomotives and another in eastbound. The witness explained that different operating conditions make this practice desirable.

#### Lehigh Valley and Erie

The Lehigh Valley, Frank H. Moser, coal traffic manager, testified, places its fuel orders from week to week and tries to favor commercial coal shippers with orders. Formerly, yearly contracts were entered into, but this policy was abandoned for two reasons: It was thought that the weekly orders would bring both lower prices and more commercial coal traffic. In this connection Mr. Moser said that he thought Lehigh Valley fuel prices were as low as possible for satisfactory coal but, when pressed for reasons which would prompt him to reject cheaper coal, he said he would reject such "if the person offering it had nothing to give in return." Commercial traffic considerations might also lead the Lehigh to pay different prices for coal from the same district, the witness admitted.

W. A. Cotton, mechanical assistant of the Erie, stated that this road reaches but few bituminous coal mines and, generally speaking, its policy is to take practically the entire output of the few producers local to it. It pays these latter more than is paid for off-line coal at the mines. Prices for fuel from each field are fixed and reciprocity is a factor in the allocation of fuel orders, Mr. Cotton continued. Furthermore, the Erie takes practically the entire output of the Northwestern Mining & Exchange Co. which it controls; for this coal the Erie is billed \$1.90 a ton. Attorney List called Mr. Cotton's attention to Northwestern cost sheets showing production costs of from \$1.55 to \$1.65 a ton and to other data indicating that the Northwestern had sold

coal at \$1.098. The witness agreed to supply a list of those who purchased the coal at \$1.098.

As Mr. Cotton continued it developed that L. L. White, assistant to the president, determines fuel prices and the allocation of orders and Examiner Berry suggested that Mr. White's testimony would be necessary. The Erie case was therefore adjourned to the time of the Detroit hearings when M. B. Pierce, assistant general counsel, agreed to have Mr. White appear. Following the Erie, Henry H. Shepard, vice-president and general manager of the Brooklyn Eastern District Terminal, presented brief testimony. This company uses only fuel-oil since all of its locomotives and tugs are oil-burners.

#### Baltimore & Ohio

The presentation of the Baltimore & Ohio included also that of the Baltimore & Ohio Chicago Terminal and that of the Staten Island Rapid Transit. E. E. Ramey, fuel engineer, first testified concerning the selection and inspection of fuel coal and was followed by C. H. Dyson, fuel agent, who has supervision over fuel buying. Mr. Dyson stated that the B. & O. now buys coal on the basis of spot orders placed from week to week or even from day to day. What this witness characterized as traffic and operating factors enter the allocation of fuel orders. Those who are patronized for operating reasons include coal producers who have aided the B. & O. in times of coal shortages and those with mines so located that delivery direct to tenders of locomotives can be effected. The tonnage reserved for this group is deducted from the total requirements and the remainder is purchased from producers or sales agents whose commercial coal shipments over the B. & O. in the previous year amounted to 200,000 tons. Only past traffic actually received is given consideration in these allocations.

In fixing prices, Mr. Dyson said, the B. & O. invites quotations which are tabulated and an average bid for each district is computed. This latter is compared with the bids of the "more substantial" producers and a price for each district is determined. In this connection Mr. Dyson described conditions in the coal fields where he said wage cutting and cut-throat competition were bringing ruin to communities. These conditions, he added, cause the B. & O. considerable concern and it has thus "tried to pay a fair price in the hope that its customers would prosper and, thus prospering, bring prosperity to the Baltimore & Ohio." When Attorney List and Examiner Berry directed their cross examination to this statement and asked Mr. Dyson if the B. & O. thinks it is necessary to pay operators more than they ask in order to assure the miners fair wages the witness admitted that the declaration was merely a "grandstand play." More by-play on this "declaration of policy" came when Mr. Dyson later admitted that he had during the past few months been buying coal in the Fairmont district for as low as 72 cents a ton.

Testifying for the Baltimore & Ohio Chicago Terminal, Mr. Dyson said that he buys fuel coal for this company through the Globe Coal Company of Chicago in accordance with instructions from the president of the B. & O. C. T. It developed that the B. & O. was buying the same coal 10 cents a ton cheaper than the B. & O. C. T. and it was agreed that the B. & O. C. T. case would be adjourned to March 23 at Chicago when the president of the B. & O. C. T. will testify on the practice of buying through the Globe Coal Company.

Mr. Dyson also buys coal for the Staten Island Rapid Transit. This road uses a small amount of anthracite which it mixes with low volatile bituminous in order to



comply with smoke elimination regulations. This anthracite, coming from mines on the Reading, the Lehigh Valley and the Pennsylvania, is purchased through two companies—Madeira, Hill & Company and the Philadelphia & Reading Coal & Iron Company. All bituminous fuel coal used by the Staten Island is purchased by the B. & O. from mines on its lines; the B. & O. instructs producers to bill the Staten Island for bituminous coal requisitioned by the latter.

## Safety on the C. & W. C.

GENERAL CHAIRMAN W. D. PAGE, of the Safety Committee of the Charleston & Western Carolina, who reports a casualty rate among employees for 1931 of only 2.14 per million man-hours, utilized as one of his stimulants for employees' wits and consciences the unique "command" which is embodied in the pseudo-legal form reproduced below. This "subpoena" was issued at the beginning of the third quarter. Whether commanding is better than exhortation or entreaty is perhaps a question of no more than academic interest, for the real significance of this subpoena lies in the combination of "command" and "commend". A careful reading of the whole document must have no other than a salutary influence.

The Charleston & Western Carolina operates 343 miles of line, has 54 locomotives and an average of about 1,000 employees. The reportable injuries to employees in 1929 aggregated 79; in 1930 the total was 50 and in 1931 it was 6; making the rate in the latter year 2.14, as stated above. The 6 included no fatalities.

COUNTY OF RICHMOND,

### *The Commonwealth of General Safety*

To all employees of the Charleston & Western Carolina Rwy. Co., jointly and severally, each one of you, and your dependents,

**We Command You**, and each of you, that you be and appear in full bodily vigor, and without blemish, accident or injury, at

YOUR USUAL RESIDENCE AND OCCUPATION

ON

**NEW YEAR'S DAY**

Friday, January 1st, 1932

**Witnesseth**, that compliance with this subpoena will assure to those hereby summoned an appreciation of excellent merit, to-wit:

The Commendation of the Management

FOR

*An Envious 1931 Safety Record*

*And your Own Personal Satisfaction in Being Alive, Sound in Health and Limb!*

**Witness**, that employees will not be required, or expected, to present health certificates, but merely clear records of caution, common cheerfulness and safe performance.

**Witness**, our hands and seal this 15th day of October, 1931.

W. D. PAGE      Chief Safety Justice  
R. W. WYNN  
R. W. LAMKIN  
J. C. DOUGLAS  
A. A. MOFFITT  
C. F. HARVIN  
W. W. WHITEHEAD      Associate Judges

Attest:

J. J. McKELLAR,  
Efficiency Judge



"In the Court of Common Safety"

Reduced copy of a circular sent out by the Charleston & Western Carolina. The folded document is superscribed "SUBPOENA, in the Court of Common Safety."

## Books and Letters . . .

### The Offensive Is The Best Defense

COLUMBUS, GA.

TO THE EDITOR:

What has become of the hard-boiled old time railroad managers. They must have all died or retired, judging by the statements of some of these present-day railroad men squawking about the bus and truck competition. The old timers would have rolled up their sleeves and knocked this competition higher than a kite by entering this bus and truck business and grabbing off their share, or known the reason why.

It's no good locking the stable door after the horse is gone. The best bet is to go look for the horse. That is what the railroad companies had better do. There is no good bemoaning the fact that the cream of the business is gone. That will not get it back. Better get some buses and trucks and get it back with them. Or, if they cannot do that, then go after some new business. The bus and truck business is a fertile field, the railroad companies have the trained personnel, buildings and machinery. All they want is a Moses to lead them out of the wilderness.

It would be a good idea actually to apply some of their slogans to their business—slogans such as Progress, Service, etc. They evidently have been so wrapped up in their own surroundings, that they have failed to see the march of progress outside their own bailiwicks. The railroad companies' business has always been land transportation and up to date they have been under the idea that this transportation must necessarily involve steel rails. They have failed to see the thousands and thousands of self-propelled vehicles that move on dirt and concrete roads—the octopus that is eating them up alive. What they have to do is to go out and give battle to this octopus. It is a wonder that old man Hill, and some of the other old timers do not come back and haunt them. They have got to fight an offensive fight, not a defensive one—in fact come out of the trenches and go over the top.

F. A. WHITAKER.

### New Book

*Railway Literature, 1556—1830*, by R. A. Peddie. 79 pages, 7¼ in. by 4¾ in. Bound in cloth. Published by Grafton & Company, London, England. Price 10 shillings 6 pence.

Because "the bibliography of railways has hitherto been neglected, with the result that the historians of the subject have not discovered many important sources of information," Mr. Peddie has compiled this handbook of railway literature prior to 1830. It contains the titles of books, pamphlets and articles published on railways during their evolutionary period, covering, as the preface points out, the "plate wagon days of the seventeenth century, the wooden edge rail ways of the early eighteenth century and the iron railways of the latter part of the period." The author makes no claim to having compiled a complete list and in fact mentions several sources which were unavailable to him. He, therefore, expresses the hope that the compilation will be judged by what it does contain rather than by what has been omitted, and in this connection calls attention to the alternate blank pages which have been provided for such additional entries as the reader may desire to make.

COURTESY is the fundamental principle of diplomacy—each employee is, in a sense, an ambassador to the public, representing the business which employs him. Be Brief—politely. . . . Be Aggressive—tactfully. . . . Be Emphatic—pleasantly. . . . Be Positive—diplomatically. . . . Be Right—graciously.—Canadian Pacific superintendent's circular.

# Odds and Ends . . .

## The Horrors of War

According to newspaper dispatches from Shanghai, the explosion of a munitions ship and the report of a Japanese air bombardment so alarmed the engineer of a train en route from Shanghai to Hangchow, that he abandoned his passengers and fled in his locomotive. The train was some miles outside of Shanghai, but the engineer ran it on a siding, uncoupled the locomotive and hurried back to Shanghai, leaving the passengers stranded.

## "Rocket" on Display

A full-size replica of the world's first locomotive, the "Rocket," which was built in England in 1829, was placed on display in the Chicago Union Station concourse on February 6. It was purchased from Robert Stephenson & Company, Ltd., of Darlington, England, who were the original builders of the engine, by the Museum of Science and Industry of Chicago, and will be installed in the museum in Jackson Park to remain there permanently.

## The Fast Mail

J. B. Henry, formerly general agent of the Norfolk & Western at New York, recently received a postcard which was addressed to him on August 23, 1912, by George Garber, Norfolk & Western route agent. Nineteen years ago Mr. Garber was stopping at a hotel in Maryland. He wrote two cards and posted them at the hotel desk. One was addressed to Mr. Henry, the other to Mr. Henry's secretary, now deceased. For some unexplained reason the cards remained in the hotel desk. Nineteen years later someone cleaned out the desk and found the cards. The hotel manager forwarded them and they were delivered to the office of J. Harmon Wilson, the railway's general eastern freight agent, located at New York, who forwarded Mr. Henry's card to him.

## More News from Austria

Later advices from Vienna indicate that there is more to the story about how the railway employees in Austria are obeying the rules and virtually tying up the railroads, than we reported in our issue of February 6. It seems that the railway employees are not united in support of the policy of observing every rule down to the last syllable, for the purpose of delaying the trains. This is the policy only of the National Socialists among the railway employees, which include the stationmasters, clerks, car inspectors, and other employees outside of the road service. The train and engine service employees, being members of the Social Democratic party, are on the other side of the fence in the controversy. It seems that the trouble all started when the government took steps to reduce the salaries and wages of railroad officers and employees, by nearly five million dollars a year. The train and engine service employees were agreeable to accepting cuts aggregating three million dollars a year, but the members of the National Socialist party steadfastly refused to consider any wage reduction. As related before, members of the National Socialist party planned to delay the service, not by disobeying railroad regulations, but by enforcing them so efficiently that only a super-locomotive would be able to pass their strict inspection and only a train in perfect condition could leave a station. They insisted that every wheel and axle be examined at each station and that every nut and bolt be tested. By these tactics they were able to cause delays of from three to four hours to nearly all trains. The engine and train service employees, being opposed to these tactics, quietly set about to overcome them. Thus, while trains were delayed for long intervals at each station by the inspectors, in the long stretches between stations the engineers pulled their throttles wide open in an effort to make up the time lost. In many cases they succeeded and the opposition was defeated.

## Nomenclature in Newfoundland

This department, in the past, has endeavored with more or less success to ascertain, by diligent research, those railway stations boasting the shortest and also the longest names; and it has made a point of mentioning, from time to time, those bearing designations that seem particularly interesting, peculiar or unusual, especially to anyone unacquainted with the history or geography of the point served. Now, however, we stand ready to support the British Dominion of Newfoundland against any territory of equal size and population anywhere in the world, whenever the subject of originality and uniqueness in the choice of station and town names comes up for discussion. Interesting bits of local history, peculiar local geographical features, the occupations of early inhabitants, or memory of some locally-famous personality undoubtedly explain many such names—but some of the others have apparently been picked out of thin air.

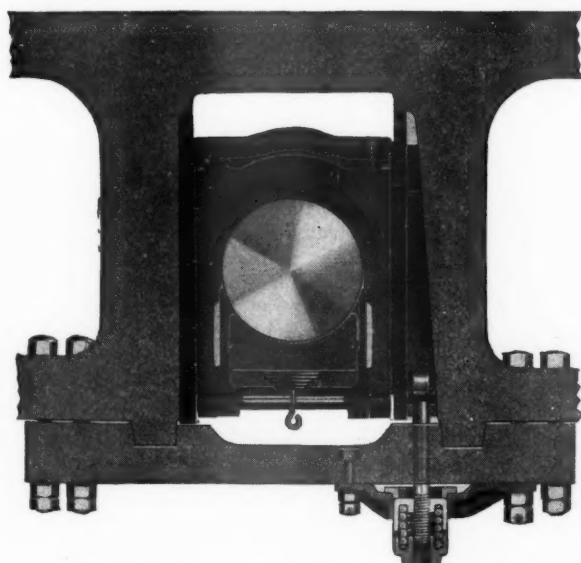
To mention only a few, a passenger westbound from St. John's to Port-aux-Basques on the 547-mile main line of the Newfoundland Railway (formerly the Reid Newfoundland), would find his train passing or stopping at, among other points, such quaintly-named stations as Topsail, Fox-Trap, Seal Cove, Cat Hill Siding, Spread Eagle, Rantem, Come-by-Chance, Goobie's, Northern Bight, Dark Hole, Terra Nova, Gambo, Goose Pond, Hattie's Camp, Monchy, Eel Brook, Skull Hill, Mary March, Gaff Topsail, Curling, Black Duck, Pulpwood Siding and Wreck House—while at one point on his 27½-hr. journey, he would be within sight of the Annieopsquolch mountains. A traveler wishing to visit Brigus—home of Bob Bartlett, famous Arctic explorer and Peary's guide to the North Pole—or Harbor Grace—take-off point of many trans-Atlantic flights—would first have to pass through Turk's Gut Siding, but would arrive eventually at Water Shute, Bristol's Hope and Carbonear. Or trains on the Bonavista or Bay-de-Verde branches would take him to Goose Arm, Parson's Siding, Job's Cove Siding or Red Head Cove. Young lovers or honeymooners could hardly do better than journey up the Brigus branch as far as Cupids, and then, returning through Brigus Junction to Whitbourne on the main line, board a train running via Dildo for what—if there is anything in a name—must be the thoroughly delightful adjacent villages of Heart's Delight, Heart's Desire and Heart's Content. On the other hand, it probably takes no highway competition to keep passenger traffic on a losing basis on the Trepassey branch, with its gruesomely-named stations of Witless Bay, Gallows Cove and Hell Hill—to the last two of which the railway presumably sells only one-way tickets.

The delightfully unique names of its railway stations seem by no means to have exhausted the originality of the dominion's early settlers, however, for the names of harbors, fishing villages and other ports of call along the 3,230 miles of steamship lines operated by the railway system along the coasts of Newfoundland and Labrador are no less entrancing. The smallest possible list would necessarily include, for instance, Fogo, Seldom, Change Islands, Herring Neck, Exploits, Leading Tickles, Nipper's Harbor, Coachman's Cove, Great Harbor Deep, Hooping Harbor, Ireland's Eye, St. Jones Without—and, just beyond, St. Jones Within—Little Heart's East, Happy Adventure, Squid Tickle, Sweet Bay, Joe Batt's Arm, Rattling Brook, Three Arms, Fortune, Garnish, Mose Ambrose, Pushthrough, Lawn, Little Paradise—and Paradise, too, of course—Spanish Room, Haystack, Cow Head, Occasional Harbor, Dead Island, Venison Islands, Comfort Bight, Punch Bowl, Spotted Islands, Domino, Smokey, White Bears, Ragged Islands, Iron Bound Islands, Ladle Cove, Gander Bay and Offer Wadham. But the genius for nomenclature of even a Newfoundlander has its limits, apparently, for—moving not exactly from the sublime to the ridiculous but certainly from the unusual to the commonplace—there are, on the same steamer routes, Portland, Brooklyn, Long Beach and Coney Island.



# A LITTLE SLACK IS A DANGEROUS THING

Give a little slack a chance to grow and trouble piles up rapidly. « The first loose box loosens all the rest and soon the bushings hammer out on all the rods. « Then comes danger to pins and frames, particularly with the heavy stresses and high speeds of modern operation. « Franklin Automatic Adjustable Wedges keep slack within bounds. Wedges are adjusted automatically with every revolution of the drivers. « Give your locomotive's foundation this necessary protection and reduce its maintenance costs and that of the track.

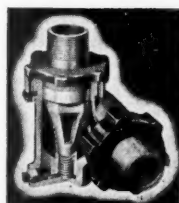


THE FRANKLIN AUTOMATIC  
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THE FRANKLIN SLEEVE JOINT  
Saves gaskets and lowers main-  
tenance.



# NEWS

## Highway Traffic If No Railways Existed

One division's depression traffic  
on P.R.R. would in trucks fill  
trans-Pa. highway

Reducing to a myth any belief that motor transport could supplant the railways, Elisha Lee, vice-president of the Pennsylvania in an address at Pittsburgh, Pa., on February 16, pointed out that the present reduced traffic handled on the railroad daily on one division alone would all but completely fill the William Penn highway between Philadelphia and Pittsburgh.

"The Pittsburgh division between Pittsburgh and Altoona," he said, "and the New York division between Philadelphia and New York, are each, even in these dull times, moving between their terminals well over 100,000 tons of freight a day. If this freight were all transferred to five-ton trucks, each of which was carefully loaded to its maximum capacity, more than 20,000 such trucks would be required to do the work of either division.

"Now, let us imagine the Pittsburgh division traffic transferred to the William Penn Highway. Of the minimum of 20,000 trucks, about 14,000 would be running eastbound and 6,000 westbound. Allowing a reasonably safe running distance between the trucks, the eastbound caravan would stretch from Pittsburgh to Philadelphia and some miles beyond. The westbound line would cover 150 to 160 miles of the highway. Assuming that the movement both ways was distributed over the 24 hours, a truck either east or westbound would pass any given point, on the average, approximately every four and one-third seconds. It is obvious if the William Penn Highway were turned over to this traffic, it would be useless for any other purpose, and would be almost impossible to cross, either on foot or in a vehicle.

"Such comparisons, without taking the passenger traffic into consideration at all, ought to settle the question that the country needs its railroads and cannot get along without them, and that they are plainly in no danger of going the way of the canal, that is, drying up because something better has been found. The real danger lies in the fact that the railroads are completely regulated, while the trucks are almost completely unregulated. Hence the trucks are free to pick and choose between the kinds of traffic they shall accept, and as a consequence are continually skimming off the cream of the business—the highest paying and most profitably handled freight—and accepting loads only

to points which suit the convenience of their operators. The railroads, on the other hand, as common carriers, must, and do, accept any traffic offered, from feather pillows and straw hats to turbines and electric dynamos, and to any and all points. The injustice of this situation is perfectly obvious.

"If the railroads are necessary to the life and industry of this country, as they undoubtedly are, then the public in its own interest should see that they are protected from wasteful and discriminatory competition, when they are prevented by present regulation from effectively combatting it. The remedy is to place the trucks, and the buses as well, under proper governmental regulation. Unsoundly low charges should be guarded against by applying the principle of minimum rates, and something in the nature of a certificate of public convenience should be required from everyone before engaging in highway transport business of any kind. Such regulation should be helpful to motor transport itself and bring order out of chaos.

"We realize that the challenge of the times is good service at low cost, through the employment of the most efficient agency to provide an economical result. We, on the railroads, accept this challenge. We know that to successfully meet the issue we must adapt to a common end the best in each transportation enterprise. I have complete faith in the ability and ingenuity of railroad managers to meet this situation, and, given a fair measure of freedom, they will have the power to make co-ordination of these enterprises effectual. We are, in fact, doing this now, to the extent that any man can do so with one hand tied behind his back."

## New Industries on Missouri Pacific

During 1931 a total of 680 new industries, representing an investment of \$16,985,150, was established on the Missouri Pacific. The output of freight by these new concerns is estimated at 456,329 cars per year. To serve this new traffic the Missouri Pacific authorized the construction of 171 new industry tracks, totalling 42 miles in length and costing \$676,907, of which cost the railroad bore \$290,582 and the industries \$386,325. The development of the east Texas oil fields accounted for many of the new industries in the territory served by the Gulf Coast Lines and the International-Great Northern, 337 new industries being established there, with a total investment of \$10,707,650. Of these, oil products and oil well supplies accounted for 112 new industries with a total investment of \$6,762,000.

## New Consolidation Bill in House Committee

Proposed plan, drafted by Eastman  
as new consolidation basis, is  
opposed by Thom

Over the protest of Alfred P. Thom, general counsel of the Association of Railway Executives, the House Committee on Interstate Commerce took up for consideration this week a bill drafted by Commissioner Eastman, of the Interstate Commerce Commission, that reopens the whole subject of railroad consolidation. The new bill, on which hearings started Wednesday, displaces another that was aimed simply at bringing railroad holding companies under the jurisdiction of the commission.

Declaring that consolidation is a matter that concerns all railroads, Mr. Thom urged that it should not be treated in a bill dealing with the peculiar situation created by holding companies. Mr. Thom referred particularly to the provision of the bill, H.R. 9059, declaring that proposed consolidations, mergers, acquisitions of control, etc., shall be in harmony with and in furtherance of the commission's consolidation plan.

"The theory is," said Mr. Thom, in commenting on the bill following the committee session, "that the commission can force down on the railroads its conception of what consolidation ought to be. The commission can't do that. Consolidation must come from the railroads that have reached agreement upon the terms and conditions under which it can be brought about."

In response to Mr. Thom's request that the question of regulating holding companies should be considered without reference to railroad consolidation, Representative Igoe, Democrat, of Illinois, presented a motion that hearings on the bill be deferred until the commission has reached its decision on the four-system plan of railroad consolidation in eastern territory. This motion was defeated by a narrow margin in a stormy executive session of the committee.

As explained by Commissioner Eastman, chairman of the commission's legislative committee, the purpose of the bill, aside from bringing holding companies under the commission's jurisdiction, is to facilitate railroad consolidation by providing for every legitimate method by which railroads can be brought together. In Commissioner Eastman's opinion, this is a desirable preliminary to making other methods unlawful. In the new bill paragraphs



2 and 6 of section 5 of the Interstate Commerce Act would be combined and the present limitations in paragraph 6 that have prevented actual consolidation of rail properties would be eliminated.

The commission's consolidation plan, subject to modification on its own motion, would continue to serve as a guide. The commission would have authority to require holding companies to divest themselves of stock interest used to effect control of a combination of operating companies, but proceedings may be suspended if, in the meantime, the commission has reopened its consolidation plan and decides upon changes that bring it into harmony with combinations formed without its consent. A case in point is the four-system plan. The commission now is prosecuting the Pennsylvania Railroad and the Pennsylvania Company for violating the Clayton anti-trust act in acquiring stock control of the Wabash, while at the same time considering modification of its plan so as to permit allocation of the Wabash to the Pennsylvania system.

Walter M. W. Splawn, special counsel for the House Committee, testified that the bill will make it much easier for railroads to carry through consolidations authorized by the commission. Consolidation does not offer much foundation for hope that freight rates will be reduced but it is more evident than ever, said Mr. Splawn, that consolidation is necessary to utilize a substantial proportion of railroad mileage and that economies in operation are large enough to justify the policy framed by Congress in 1920. With reference to the provisions of the bill for the regulation of railroad holding companies, Mr. Splawn stated that it was plainly the intention of Congress, in order to safeguard the public interest, that complete control of railroad consolidation and unification should be in the commission's hands.

### N.R.A.A. Annual Meeting

The National Railway Appliances Association will hold its annual meeting at the office of the secretary, 1014 South Michigan avenue, Chicago, at 11 a. m. on Monday, March 14—the day preceding the opening of the convention of the American Railway Engineering Association. As announced some time ago, the appliances association will hold no exhibit this year.

### Club Meetings

The Railway Club of Pittsburgh (Pa.) will hold its next meeting on Thursday evening, February 25, at the Fort Pitt Hotel, Pittsburgh. A. G. Pack, chief inspector, Bureau of Locomotive Inspection, Interstate Commerce Commission, will speak on the work of that bureau; and there will be a brief address, appropriate to Washington's Birthday, by R. P. Forsberg, chief engineer of the Pittsburgh & Lake Erie.

The New England Railroad Club will hold its next meeting at the Copley-Plaza Hotel, Boston, Mass., on Tuesday evening,

March 8. M. W. Sheehan, General Steel Castings Corporation, will present a paper on operating savings from steel castings. This will be the forty-ninth annual meeting, with election of officers.

### Mechanical Division Annual Meeting

According to circular No. D. V.-758, issued by the American Railway Association, Mechanical division, over the signature of Secretary V. R. Hawthorne, the thirteenth annual meeting of this division will be held at Chicago on Thursday and Friday, June 23 and 24. The sessions of the convention will be held in the Louis XVI room of the Congress hotel, which will also be convention headquarters.

### Curtains in Refrigerator Cars

The Missouri-Kansas-Texas, by placing a curtain across a refrigerator car so as to divide the car into two parts, has made it possible for such a car to render service for which two cars were previously required. Perishable and non-perishable freight may thus be carried in the same car.

Under the new arrangement 29 of

The only thing certain at present is that the anomalous position of the Interstate Commerce Commission cannot much longer endure. If it is to live, it must become a constructive arm for transportation development, instead of a destructive meddler in railroad affairs alone. The change is foreshadowed already by certain happenings. The bankruptcy of the Wabash system is one. The increasing burden of taxes which the railroads must furnish, in order to help suppress themselves, is another. The growing public nervousness over certain features of our unregulated automotive transport is another. Then there are our tax-supported and masterless waterways.

We are coming to realize once again that transportation is a matter of moving passengers and freight to the best advantage. It is grotesque to base economic competition on different kinds of machines. Natural competition is one of routes and regions, in which any single system can use railroads, motors, steamships, or aircraft, so long as the services of these machines are in the direction of efficiency. Under such a competitive system, the Interstate Commerce Commission might become what its title implies. It could concern itself not with an illogical rate structure, but with the enforcement of a strict relation of rates to costs as do our public service commissions with the power industry.

—Edward M. Barrows in the Review of Reviews.

these special cars are loaded and forwarded weekly from Kansas City to various points on M.-K.-T. lines. Each is equipped with a patented standard-size dividing curtain, which can be easily and quickly installed in any refrigerator car, preferably near the door, partitioning one end for the loading of perishable shipments.

The curtains are attached to the ceiling and side walls with double-headed nails which can easily be removed at destination without injury to the insulation. In the center of each curtain is a fastening device which can be easily and speedily adjusted. When removed at destination, the curtains are compactly wrapped and tied and returned to the point of origin.

The cost of the initial icing and the re-icing of one car is only one-half the former cost. It is estimated that discontinuing the operation of approximately 80 non-iced merchandise cars has reduced by 20,000 the car miles per month.

### Pullman Porters' Wages Cut

The wages of all Pullman porters have been cut \$5 a month, an amount equal to the increase in pay granted the porters in May, 1929. Hitherto the rate was \$72.50 a month for beginners and ranged upward to \$125 a month for more experienced men.

### A. R. E. A. Convention Program

Final arrangements for the thirty-third annual convention of the American Railway Engineering Association have been practically completed. The meeting will be held in the Palmer House, Chicago, as in the recent past, but as was the case last year, the session will be for two days only, March 15 and 16. The program follows:

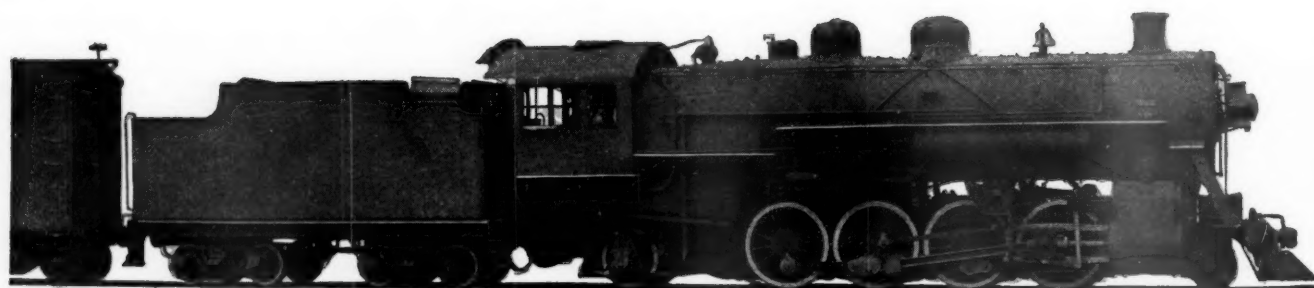
- Tuesday Morning*  
President's address, L. W. Baldwin, president, Missouri Pacific.  
Reports of secretary and treasurer.  
Reports of committees on:  
Uniform General Contract Forms  
Iron and Steel Structures  
Wooden Bridges and Trestles  
Clearances  
Electricity  
Signals and Interlocking
- Tuesday Afternoon*  
Yards and Terminals  
Shops and Locomotive Terminals  
Standardization  
Maintenance of Way Work Equipment  
Rules and Organization  
Grade Crossings
- Tuesday Evening*  
Rivers and Harbors.  
Roadway  
Stresses in Railroad Track  
(1) Some features of the rail joint  
(2) The desirability of reducing to a minimum the present variability factor in track
- Wednesday Morning*  
Economics of Railway Operation  
Economics of Railway Labor  
Water Service and Sanitation  
Buildings  
Masonry  
Waterproofing of Railway Structures  
Records and Accounts
- Wednesday Afternoon*  
Ballast  
Ties  
Wood Preservation  
Rail  
Track

As a part of the report of the Committee on Stresses in Track, a series of lantern slides will be shown on Tuesday evening. On Wednesday a luncheon will

*How far does  
your operating do*



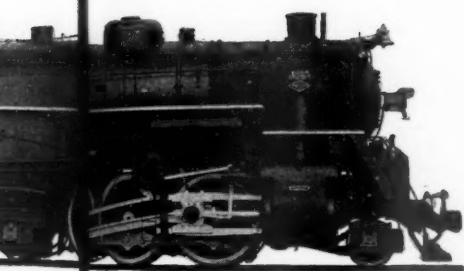
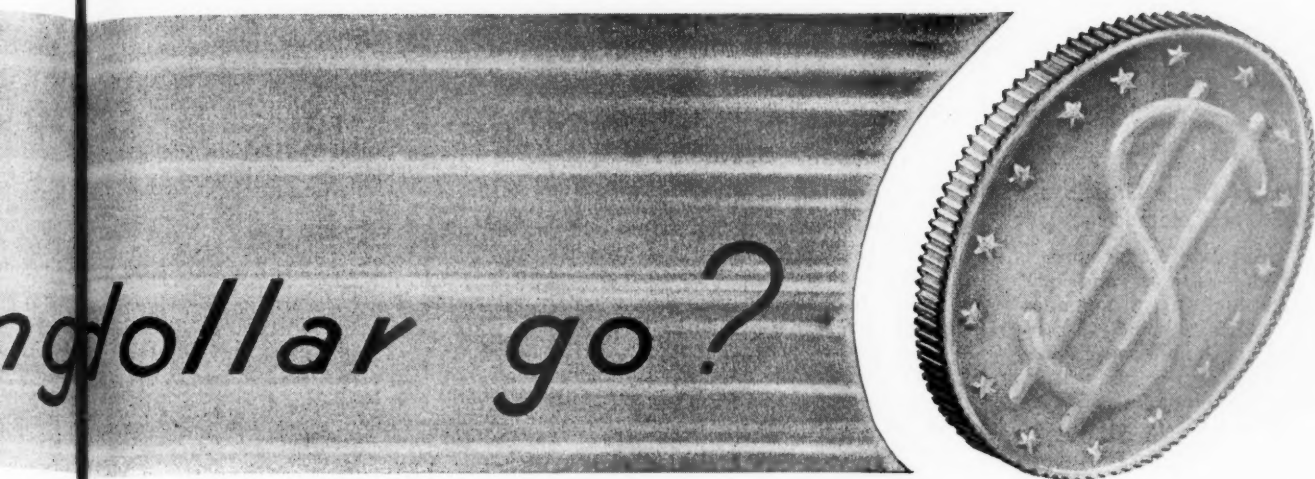
**WITH LIMA SUPER-POWER**



**WITH A LOCOMOTIVE BUILT 10 YEARS AGO**







WITH Lima Super-Power your operating dollar will go at least 30% farther than with a locomotive built 10 years ago.

- This is being proved today when railroads are resorting to their Super-Power in preference to their older locomotives to get the maximum net return out of reduced traffic.
- The economy and efficiency of Super-Power locomotives will be further strikingly shown as traffic increases. With the resumption of normal business the high "net" ratio cannot be maintained if old and obsolete engines are returned to service.
- Insure continued efficiency by formulating now an effective motive power replacement program.

# LIMA LOCOMOTIVE WORKS

Incorporated

LIMA

OHIO

be served in the Red Lacquer room for members of the A. R. E. A. and the National Railway Appliances Association and guests, with a short program during which a speaker of note will give a short address.

### Standardization of Grade Crossings Proposed in Colorado

The Public Utilities Commission of Colorado has asked railways and officers of the state highway department to appear before it on March 5, to consider the desirability and feasibility of a rule requiring all railroads in Colorado to adopt the recommendations of the A. R. A. Joint Committee on Grade Crossings.

### Katy Makes New Safety Record

The Missouri-Kansas-Texas, during 1931, established the best safety record in its history, by completing the year with only 4.7 employee casualties per million man-hours. This compares with a ratio of 38 casualties per million man-hours in 1918 and 6.75 in 1930. There were no deaths of passengers during 1931 and only 6 reportable injuries compared with one death and 27 injuries in the preceding year.

### Change in Design of Stock Car Being Studied

Following the proposal that the design of the stock car be changed to meet business conditions, the Mechanical Division of the American Railway Association has asked the Freight Claim Division to circularize members to determine what, if any, ideas should be incorporated in the construction of stock cars to reduce loss and damage. The study being made is similar to that conducted in 1926 when the Mechanical Division gave consideration to the standard stock car.

### Railway Employment Further Reduced in December

A further reduction of over 35,000 in the number of railway employees between the middle of November and the middle of December has been reported by the Interstate Commerce Commission in its preliminary statement of employment statistics. The total in the service of Class I railroads in December was 1,133,923, a decrease of 16.41 per cent as compared with December, 1930. In November the total was 1,169,207. The largest number of employees in service in any month for 1931 was 1,337,331 in May.

### Airplanes Every Half Hour

Beginning in April, the Ludington Lines, operating airplanes between New York, Philadelphia and Washington, will have planes leaving New York and Washington every 30 minutes throughout the day, and some of these planes will be scheduled through in one hour, 20 minutes; 40 minutes faster than by the present timetable. The Ludington Lines, since the opening of this service two years and seven months ago, during which time planes have been flown every hour each way, all day, are reported to

### Trucks, Buses and Railways

To the New York Herald Tribune:

In regard to the use of public highways by trucks and buses for commercial transportation purposes in competition with the railroads:

It is manifestly unfair that highways built and maintained at the expense of the taxpayers should be turned over free of charge to this heavy and obstructive traffic while the railroads are required to provide and maintain their own rights of way, besides paying their share—and a large one it is—of the taxes which pay for the upkeep of the roads used by their competitors.

To the "unofficial observer" it would appear that the equitable method would be to require public transportation companies which compete with railways to provide and maintain their own rights of way, subject to the regulation of the Interstate Commerce Commission, as is now the case with the latter.

Edward P. Swift.

New York, Feb. 2, 1932.

have carried more than 90,000 paying passengers; and with but one serious accident.

### Katy Improves Locomotive Performance

The Missouri-Kansas-Texas, in 1931, established a new record for the number of engine failures, by reducing the number to 70, as compared with 86 for 1930. This new low mark is a continuation of the efforts of a series of years. In 1922, there were 2,907 failures, equal to 8,121 miles per failure, while in 1931 the number had been reduced to 70, and the miles per failure had been increased to 160,251. At the same time, the condition of locomotives, as shown by the periodical federal inspection, continued at a high point, only six having been found defective out of 1,065 inspected in 1931, as compared with 599 found defective out of 853 inspected in 1922.

### Walker's Window Clarifier

The Long Island road is trying a new arrangement for wiping frost or snow off the front windows of locomotives, the invention of James B. Walker, New York City, secretary of the Metropolitan division of the New York State Public Service Commission. Mr. Walker has had the device patented.

The invention consists of two window panes of equal size, moving up and down in a vertical frame, each sash being connected with a chain which runs over pulleys at the top of the frame. When one sash is lowered the other automatically rises to the observation position. At the bottom there is a pocket to re-

ceive the sash, and in the pocket there is an electric heater, providing sufficient heat to melt quickly any snow which may have accumulated. The pocket also contains two sets of rubber window wipers. When the engineman lowers the snow-covered window into the pocket its place is immediately taken by the clear pane. In a hard snowstorm the window can be reversed every minute, or as often as necessary. Operation of the windows is by hand, but it would, of course, be a simple matter to instal an air or electric motor.

### Derailment of Live Stock Show Train

The Interstate Commerce Commission has made public its report on the derailment on November 22, last, on the Missouri Pacific, at Myrick, Mo., of a train carrying 48 carloads of horses and cattle from a live stock show in Kansas City, Mo., to the International Live Stock Exposition in Chicago, when four attendants were killed. The newspaper accounts referring to this as a "million-dollar train," contained long lists of the pedigreed animals and the names of their owners. The report, condensed, shows the facts as follows:

Eastbound second class freight train No. 62, consisting of 48 freight cars, one dining car, one coach, one chair car and a caboose, hauled by locomotive 5341, moving at about 25 to 35 miles an hour, was derailed on a curve by a broken rail, the leading and driving wheels of the locomotive, however, remaining on the track. More than 20 cars were thrown off, eight of them being bunched in a short space. The cars were loaded with valuable horses and of the numerous attendants accompanying these horses four were killed and 38 were injured.

The rail, which was on the high side of a five degree curve, failed because of a transverse fissure. It had been laid in 1906 on the Colorado division and in 1929 was transferred to the place where it failed. On July 27, 1930, it had passed inspection by a detector car. It was exposed to greater traffic density on this division than in Colorado. Following the accident, the pieces of the rail were bolted together and again subjected to the detector car but no new defect was recorded except a slight kink, due no doubt to shocks in connection with the derailment.

The detector car has traveled 3,454 miles on the lines of the Missouri Pacific and has recorded indications of 1,589 defective rails. This number includes 611 horizontal fissures, 233 transverse fissures, 561 split heads, 19 cracked webs, one piped rail and 164 miscellaneous defects.

### Quebec Central Seeks Exclusive Highway Permit

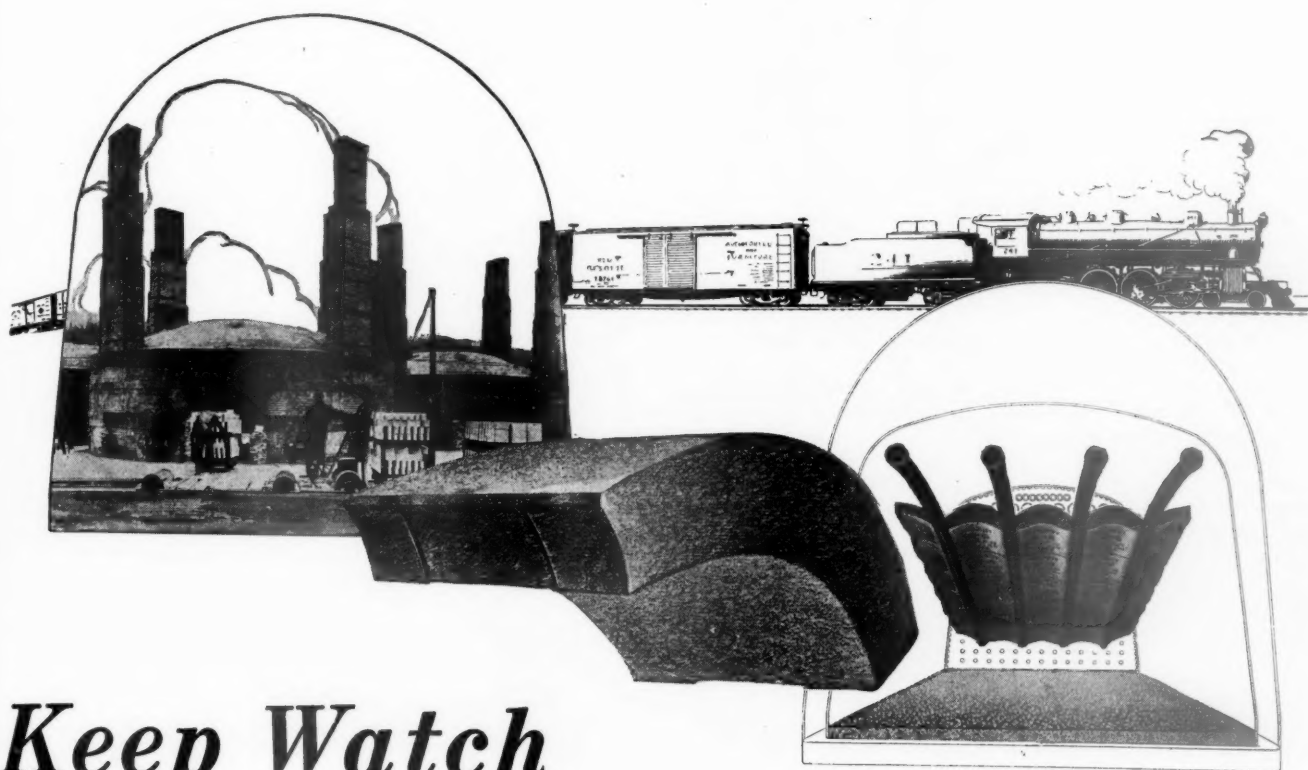
The Quebec Central has petitioned the Quebec Public Service Commission asking for exclusive privileges of operating a daily passenger and freight service, by bus and truck, on the government highway between Sherbrooke, P. Q., and Derby Line, Vt. The petition, which the Commission took under consideration stated that "the carriage of passengers



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THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

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## Keep Watch on Arch Brick Standardization

**I**N the early days of the locomotive Arch, American Arch Company brought order out of chaos. Arch tube practice was standardized; shapes and sizes of brick were simplified and the Arch designed with standardization and low inventory in view.

On a road which recently returned to American Arch Company service, it was found that special designs were being used on three different classes of power.

American Arch Company engineers, with 21 years of locomotive combustion experience, developed a single design which met the requirements of all three. Stock was simplified and maintenance made easier.

Consider the service that stands behind your Arch Brick supply. American Arch Company possesses the experience that enables you to dismiss Arch Brick from the list of things to worry about.

**HARBISON-WALKER  
REFRACTORIES CO.**  
Refractory Specialists



**AMERICAN ARCH CO.**  
INCORPORATED  
Locomotive Combustion  
Specialists

and freight by motor vehicle on the highways has so greatly expanded that the railway service of the company is diminished and disorganized in a manner prejudicial and ruinous for the capital invested and threatening to the soundness, and even to the survival, of its public service."

The application was opposed by the Provincial Transport Company, on the ground that it already has a permit to operate in this territory and can see no reason why it should be withdrawn.

The Quebec Central proposes that a subsidiary organization should be formed, under the name of the Central Quebec Bus and Truck Service Company to institute a daily service for passengers and freight over the Sherbrooke-Derby Line highway and to run as many schedules as may be required. The daily truck service between the two places would include door-to-door delivery to supplement the regular railway service. The right is also requested to initiate a daily bus service between Sherbrooke and Thetford Mines and between Thetford Mines and Quebec city, as often as may be required, in addition to the regular passenger service and a daily truck service over the same road, including a door-to-door delivery. The right to run a branch highway service between Valley Junction and St. George is also requested and, possibly, a line between Tring Junction and Megantic.

The railway company offers to guarantee a continuation of service to the public throughout the summer months by highway or by railway and throughout the winter months by railway, and asks that the Public Service Commission give the entire and complete control of this service to the railway company and, in cases where it may not be possible to do so, to make such regulation as will bar competitive buses and trucks from establishing lower rates than those authorized to be charged by the railway company.

#### King Tilts with Bennett on Transport Probe Secrecy

While carefully refraining from saying anything about the way in which the transportation problem in Canada should be solved, in view of the fact that the Royal Transport Commission has not yet reported to the Government, both party leaders speaking in the House of Commons at Ottawa last week had something to say about the general question. The Liberal leader, Rt. Hon. W. L. Mackenzie King, renewed his complaint about the Commission sitting behind closed doors and intimated that the Government had suggested this secret way of solving the tangle. Premier R. B. Bennett said it was the Commission and not the Government that decided on secret sittings.

Mr. King also stated that the commission had been appointed after Parliament had adjourned and asked why this step was taken without giving the members an opportunity to debate the question.

"I take exception," he continued, "to the fact that my right hon. friend has permitted this commission to carry on its

inquiries from one end of Canada to the other, wholly in secret. The people of Canada have a right to know the information being given to the commission and ought to be in a position to judge of its value. I think that the matter is to a certain extent sub judice, and for that reason we will wait until the report is brought down before we discuss the matter one way or the other.

"I should like, however, to stress to the Prime Minister that we would like to have the report presented to parliament in plenty of time to consider the evidence and findings before being expected to discuss legislation based upon its recommendations, or otherwise. We do not wish to be kept waiting until the end of the session and then to have a report sprung upon this house and be told that conditions as shown in the report are such that immediate legislation or some action of a more drastic or dramatic character is necessary in order to save the country from a crisis, or something of the kind."

Premier Bennett stated that the Government had had some difficulty in getting the men desired to serve on the commission, but was finally successful.

"I have under my hand," he continued, "reports of instances when time after time the right hon. gentleman, his former Minister of Railways, Mr. Dunning, Mr. Crerar and others said it was not in the public interest that the business of these railroads should be made known either to the public or to their competitors. There were matters that had to be made known to these men that could only be made known to them by the method I have mentioned, and these means were followed to enable the commission from time to time to become informed with respect to the problem with which they had to deal. They themselves, not the government, decided that. It would be ruinous and destructive to the very interests that were to be served if this evidence with respect to the internal administration and the finances of the railways were to be communicated one to the other."

#### Eastern Roads Organize Rate Research Committee

Pursuant to suggestions made by the Interstate Commerce Commission in its decision in Ex Parte 103 (Fifteen Per Cent Rate Advance Case), a new joint committee, to be known as the "Rate Research Committee," has been organized by railroads operating in Eastern territory, members of the New England Freight, Central Freight and Trunk Line Associations. The duties of this new committee will consist of analyzing existing rates and regulations for the handling of specific commodities, and of recommending to the Traffic Executive Association—Eastern Territory such changes in these rates and regulations as seem likely to produce increases in revenues. This research will also extend to ratings in the Official Classification, and the rate research committee will work in close co-operation with the Official Classification Committee.

The new committee intends, following

announcement of its suggestions for changes, to hold public hearings thereon at any or all of the offices of the three Eastern freight associations, after which any changes deemed advisable by the committee will be recommended to the Traffic Executive Association—Eastern Territory. If and when approved by this group, they will be made effective without proceedings before the individual freight associations in Eastern territory. These latter, however, will continue their present activities concerning matters not taken up by the research committee.

Changes in Official Classification ratings similarly proposed for the purpose of increasing revenues will ordinarily call for the present procedure of the Official Classification Committee, involving docketing of changes and public hearings thereon, but this program may not be followed in all cases.

The Interstate Commerce Commission, which, in the decision referred to above, said, "We believe that the traffic departments of the railroads should address themselves to the task of making such changes in the rates on particular kinds of traffic as will, in their judgment after careful analysis of all attendant circumstances, produce additional revenue and which can be supported as reasonable under existing conditions," has indicated that when such tariffs, either higher or lower than present rates, are filed, the proceedings necessary to put them into effect will be expedited.

The newly-organized Rate Research Committee of the Eastern lines consists of Walter J. Kelly, member, auxiliary committee, Central Freight Association; N. W. Hawkes, member, Official Classification Committee; L. H. Kentfield, member, auxiliary committee, Trunk Line Association, and D. T. Lawrence, vice-chairman, Traffic Executive Association—Eastern Territory. Mr. Lawrence will act as chairman of the committee, and P. Rakowitz will act as secretary, with headquarters at Room 401, 143 Liberty street, New York.

#### Hearings on Four-System Plan Resumed

The four-system plan offers the best, if not the only practical means of solving the so-called weak road problem in the east, Ben B. Cain, vice-president and general counsel of the American Short Line Railroad Association, testified this week when hearings were resumed on the petition of the trunk lines for modification of the Interstate Commerce Commission's consolidation plan. The four systems would achieve a much better balance than five systems, according to Mr. Cain. He said that the short lines would give their assent just as readily to a five-system plan affording the same advantages, but regard the commission's proposal for creating a fifth system out of the Wabash and the Seaboard as wholly impracticable and impossible.

The trunk lines have agreed that if their plan is approved they will include all short or weak lines allocated to their respective systems which, in the commission's judgment, should be continued





# Alco

## STAYBOLTS

### PRACTICAL

### RELIABLE

### ECONOMICAL

Our line includes more than the welded and threaded bolt assemblies. We make rigid water-space, rigid radial, rigid hollow drilled, button head, and taper end crown stays.

In all these bolts, ALCO dependable construction plus quantity production can save you money.

AMERICAN LOCOMOTIVE CO.

30 CHURCH STREET NEW YORK

in operation. The short line association estimates that short lines will constitute 2.6 per cent of the New York Central system, 4.6 per cent of the Pennsylvania system, 3.3 per cent of the Baltimore & Ohio system and 5.2 per cent of the Chesapeake & Ohio-Nickel Plate system as projected in the four-party plan. Mr. Cain took the position that the question whether or not any particular short line is essential to public convenience and necessity should not be considered by the commission until the trunk lines bring in their applications for the acquisition of control of the properties required to complete the plan as outlined.

With reference to opposition that has arisen to the plan as depriving important industrial and commercial centers of competitive service, a study made by the association, said Mr. Cain, indicates that Syracuse, N. Y., Yonkers, N. Y., Altoona, Pa., and Irvington, N. J., would be the only cities with a population of 50,000 or more in eastern territory that would be served by only one road if the four-system plan is approved.

The opposition of New England states, with the exception of Rhode Island, to the four-system plan was expressed by Bentley W. Warren, representing the governor's committee. Mr. Warren protested against any invasion of New England by the trunk lines either through acquisition of the bridge lines or by stock control of New England roads. He urged that the Delaware & Hudson, the New York Ontario & Western, the Lehigh & Hudson River and the Lehigh & New England should remain with the systems to which they are now attached or as independent carriers until such time as the commission considers the situation in New England.

The hearings will continue with the testimony of various sectional and local interests which object to allocations made in the four-system plan or question their effect upon particular communities.

\* \* \*

**Our Pledge**  
**CUT EMPLOYE ACCIDENTS**  
**33 per cent by the end of '33**

**OUR PROGRESS**  
 For first nine months of 1931  
 over 1930 a decrease of 231  
 employees killed and 10,302 injured.  
 This means a reduction on  
 man-hour basis of 15% in killed  
 and 21% in injured on class I  
 Railroads.

**WE SHALL NOT FALTER IN 1932**

Message of the Safety Section for March

## Equipment and Supplies

### LOCOMOTIVES

THE ALTON is asking for prices for the dismantling or sale of 116 locomotives, 8,000 miscellaneous freight cars, and 100 passenger cars.

### FREIGHT CARS

THE WHEELING & LAKE ERIE is inquiring for from 50 to 100 flat bottom steel gondola cars of 70 tons' capacity.

THE KANSAS CITY SOUTHERN contemplates building 25 hopper bottom gondola cars of 70 tons' capacity in its own shops.

THE HAUSER CONSTRUCTION COMPANY has ordered two air dump cars of 30 cu. yd. capacity from the Magor Car Corporation.

THE BELT RAILWAY OF CHICAGO has placed a contract with the Pressed Steel Car Company for making repairs to 100 hopper cars.

### MOTOR VEHICLES

THE SAMOSET COMPANY, subsidiary of the MAINE CENTRAL, has accepted delivery of two Type U, 21-passenger observation Yellow coaches from the General Motors Truck Company, Pontiac, Mich.

### IRON & STEEL

THE ALTON expects to enter the market for a small tonnage of rail.

THE GREAT NORTHERN expects to enter the market for a small tonnage of rail.

THE CHICAGO, BURLINGTON & QUINCY expects to enter the market for a small tonnage of rail.

THE BOARD OF TRANSPORTATION, New York City, received bids on February 19 for 4,941 tons of track rail and 420 tons of guard rail.

THE WESTERN MARYLAND has equally divided an order for 2,000 tons of 130-lb. rail between the Bethlehem Steel Company and the Carnegie Steel Company.

THE SOUTHERN PACIFIC has ordered 20,000 tons of rail, dividing the order between the Tennessee Coal, Iron & Railroad Company and the Colorado Fuel & Iron Company.

THE NEW YORK, CHICAGO & ST. LOUIS has ordered 19,230 tons of rail, equal amounts being placed with the Bethlehem Steel Company, the Carnegie Steel Company, the Illinois Steel Company and the Inland Steel Company.

THE ERIE has placed orders for 33,230 tons of rail for its 1932 requirements,

as follows: Carnegie Steel Company, 18,955 tons; Illinois Steel Company, 6,147 tons; Bethlehem Steel Company, 5,555 tons; Inland Steel Company, 2,573 tons. Of the above, the order to the Carnegie Steel Company was reported in the *Railway Age* of January 23.

### MISCELLANEOUS

THE CHICAGO & NORTH WESTERN and UNION PACIFIC have placed a contract with the Pullman Car & Manufacturing Corporation, for the installation of air conditioning equipment in 19 dining cars. Of these cars, which are to be operated on the Los Angeles Limited and the San Francisco Overland Limited of the North Western, the Union Pacific and the Southern Pacific, four are North Western cars and 15 are Union Pacific cars.

## Supply Trade

The Roberts-Pettijohn-Wood Corporation, Chicago, has moved its offices to 1737 Howard Avenue.

A. E. Biddle, executive vice-president of the Universal Draft Gear Attachment Company, has been elected president, succeeding C. J. Nash, who has resigned, but who remains as a director.

Fred T. Connors, district manager of the Pittsburgh Crucible Steel Company, has been appointed manager of the western railway division of the Crucible Steel Company of America, with headquarters at Chicago, to succeed Fred Baskerfield.

The International-Stacey Corporation, Columbus, Ohio, has moved its Fort Worth, Tex. offices and those of its subsidiary companies to the Southland Life Insurance Company building, Dallas, Tex. F. W. Mohler, midcontinent sales manager, and C. B. Coldwell, sales engineer for the Stacey and Roots-Connersville-Wilbraham divisions and S. B. Creamer, sales engineer for Ideco, will be located in the Dallas office.

The Ramapo Ajax Corporation, New York, has taken over the manufacture and sale of the metal highway crossing pavement of the Locomotive Finished Material Company, which it is now handling under the name of the Racor-Universal permanent highway crossing. This type of crossing, of which there are more than 375 in service, consists essentially of a series of reinforced cast metal plates, which are installed between and outside the track rails to form a continuous smooth pavement.

The T. F. Going Corporation has been organized as a division of the Kemp-smith Manufacturing Company, Milwaukee, Wis., to manufacture finished products to railroad specifications out of malleable iron, grey iron, steel and brass. T. F. Going is president; H. F. Karlson, vice-president; F. W. Busche, secretary, and A. C. Waldron, treasurer.

Continued on Next Left Hand Page



# ILLINOIS

## TRACK MATERIALS



**Manufactured and  
Inspected to assure  
Uniform Quality...**



**Illinois Steel Company**  
SUBSIDIARY OF UNITED STATES STEEL CORPORATION  
208 South La Salle Street, Chicago, Ill.

**SPIKES • BOLTS • ANGLE BARS • TIE PLATES**

Messrs. Goings, Karlson and Busche were formerly connected with The Prime Manufacturing Company, Milwaukee, Wis. Mr. Waldron is an officer of the Kemp Smith organization.

**The Modine Manufacturing Company,** Racine, Wis., manufacturers of condensing, heating, cooling and ventilating equipment, has acquired the Melcher Company, originators of the multiple unit system for air-conditioning of railway cars. **L. W. Melcher,** president of the Melcher Company, will head a new railway division in the Modine organization, to which he brings the complete sales engineering personnel of the Melcher Company. The Modine Melcher multiple unit system of air-conditioning is now manufactured at the Modine plant at Racine. The railway sales division of Modine Manufacturing Company has headquarters at 333 N. Michigan avenue, Chicago, with sales and service organizations in 56 cities.

**Frank Jay,** bus representative in New England territory of the **American Car & Foundry Motors Company,** has been elected vice-president, with headquarters at Detroit, Mich., succeeding W. L. Stancliffe, resigned. Mr. Jay will immediately assume direction of the automotive sales of the organization. **William H. Woodin,** president of the American Car & Foundry Company, has assumed C. S. Sale's duties as president of the American Car & Foundry Motors Company. **H. W. Wolff,** for many years vice-president in charge of sales of the American Car & Foundry Company, has taken over supervision of sales of the Motors Company; **F. A. Stevenson,** vice-president in charge of operation of the American Car & Foundry Company, has also assumed charge of manufacturing for the Motors Company and has effected closer co-operation between the American Car & Foundry Company, the J. G. Brill Company, the Hall-Scott Motor Car Company and the American Car & Foundry Motors Company. **G. R. Scanland,** vice-president in charge of finance of the American Car & Foundry Company, will take direct charge of finance of the Motors Company. President Woodin, in announcing the above, said that business conditions made it necessary to secure better results with less expense and to accomplish this purpose the American Car & Foundry Company has co-ordinated the Motors Company activities with those of the parent company.

#### Air Reduction Company Annual Report

Net earnings after all charges, including Federal taxes, of \$3,815,410 were reported by the Air Reduction Company for the year ending December 31, 1931. This figure compares with 1930 net earnings of \$5,250,379.

The 1931 net was equivalent to \$4.53 per share on the 841,288-3/5 shares of the company's stock outstanding at the close of the year, which compares with \$6.32 earned in 1930 on each of the 830,435-3/5 shares outstanding at the end

of that year. The balance sheet, as of December 31, 1931, lists current assets of \$19,088,372, against current liabilities of \$1,628,645, cash on hand or in banks alone amounting to \$5,601,703, or nearly three and one-half times all current liabilities.

The consolidated income report for the year 1931 follows:

Gross Operating Income.....	\$15,641,353
Operating Expenses.....	10,114,563
Operating Income.....	5,526,790
Other Income.....	734,754
Net Income before Reserves.....	6,261,544
*Operating Reserves (\$1,871,162— for depreciation of assets).....	2,003,162
Net Profit before Federal Taxes...	4,258,382
Federal Taxes, 1931.....	442,972
Net Profit Earned on Outstanding Stock.....	\$3,815,410

\*In addition the company increased its contingency reserves \$3,297,749 by a direct charge to surplus.

#### Pressed Steel Car Company

The Pressed Steel Car Company, for the year ending December 31, 1931, reported a consolidated loss from operations of \$1,046,276, which was transposed into a net loss for the year of \$497,630 after interest and discount adjustments and a credit of \$523,802 to profit and loss from reserves created prior to 1931.

The foregoing figures do not take into consideration \$66,430 expended for maintenance and \$158,097 charged to depreciation. The balance sheet at the close of the year shows total current assets of \$6,529,512 and total liabilities of \$1,183,050. Cash alone amounted to \$1,973,212, or approximately \$800,000 in excess of the current liabilities.

The consolidated surplus and undivided profits account as of December 31, 1931, is as follows:

Surplus and Undivided Profits, January 1, 1931.....	\$16,639,233
RESULTS FOR YEAR 1931:	
Loss from Operations..	\$1,046,276
Interest on Bond Issues..\$391,639	
Interest and Discount Re- ceived .....	363,130
	28,509
	\$1,074,785
Received from Dividends on Stocks and Securities owned and Other Sources .....	\$53,353
Transfer of Re- serves Created prior to Janu- ary 1, 1931..	523,802
	577,155
	\$497,630
ADD:	
Maintenance of Buildings and Equipment ..	\$66,430
Depreciation ..	158,097
	224,527
	722,157
	\$15,917,076
DEDUCT:	
Dividends on Preferred Capital Stock.....	504,798
	\$15,412,278
DEDUCTIONS FROM CAPITAL SURPLUS:	
Investments in Subsidiary Companies and Other Investments Charged Off.....	\$942,018
Provision for Obsolescence .....	1,255,000
	\$2,197,018
LESS: Discount on Parent Company's Securities Purchased.....	221,396
	1,975,622

Surplus and Undivided  
Profits, December 31,  
1931:

Capital Surplus.....	\$3,388,154
Earned Surplus.....	10,048,502
	\$13,436,656

President F. N. Hoffstot, in his remarks to the stockholders speaks in part as follows:

The year 1931 was most difficult for everyone, but particularly so for your Company which is engaged largely in the manufacture of railroad equipment with its investments almost entirely in plants, etc., for the manufacture of freight and passenger cars or articles used in their construction. The condition of the car business in general is shown by the fact that during the year 1930 orders were placed with car builders for 33,845 cars whereas in 1931 only 4,494 were so purchased. In addition there were built in railroad company shops, during 1930, 12,765 cars and in 1931, 5,995 cars. These figures show that car business in 1931 was 86.72 per cent less than in 1930, although that year was below the average.

A feature which heretofore has been mentioned by other car manufacturers, as well as by ourselves is that referred to in a recent address by one of the editors of *Railway Age*, a leading trade paper, who stated in substance that "If a railroad manufactures things at a higher total cost than that at which they can be purchased, they in effect subsidize their manufacturing activities and simply deduct that amount from their transportation revenues."

When conditions again become normal indications are that a great demand for freight cars will occur as a result of the curtailment of purchases during the past years and the practical certainty of a car shortage evidenced by the following reasons:

There are at least 170,000 less cars in operation now than 3 years ago.

Approximately 300,000 wooden cars will have to be replaced.

Normal retirements due to obsolescence have fallen off 25 per cent in the past two years.

The principal reason for the reduction in normal retirements is that the book value of the cars retired would have to be absorbed either through charges to operations or to surplus account, neither of which many of the railroads, at the present time feel warranted in doing.

Cars not in operation deteriorate approximately twice as fast as when in service, as their operation tends to decrease the corrosive effect of water on the metal parts.

Other factors that should help the car building industry by aiding the railroads are:

The Interstate Commerce Commission's approval of certain rate increases.

The economies resulting from labor reductions by agreements between the railroads and their men.

The recent over-ruling by the Supreme Court of the Interstate Commerce Commission's decision in the Western Grain rates case.

The general protest on the part of the public against continued increases in local taxation.

The growing agitation against subsidized inland water competition.

The general tendency for regulation of railroad competition as evidenced by the report of an Interstate Commerce Commission examiner on the subject of trucks and buses.

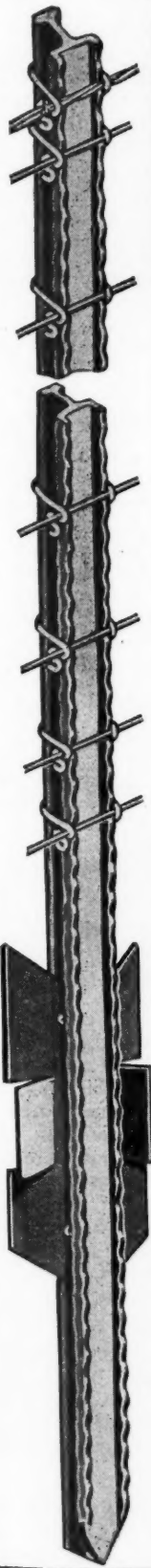
#### Lima Locomotive Works, Inc., Annual Report

For the year ending December 31, 1931, the Lima Locomotive Works, Inc., according to the annual report issued on February 8, showed a net loss of \$1,414,129, after all deductions. This figure compares with a 1930 net income, after Federal taxes, of \$1,382,318, and with a net profit, in 1929, of \$501,506. "The net loss in 1931 generally offsets the net profit in 1930," the report states, "so that for the past two-year period of unusually severe business depression the company was enabled to operate at practically no loss."

A special dividend of \$2 per share on the capital stock of the company, amounting to \$422,114, was paid on February 17, 1931. Of this amount, \$37,060 applied to 18,530 shares included in the investment account of the company, making a net

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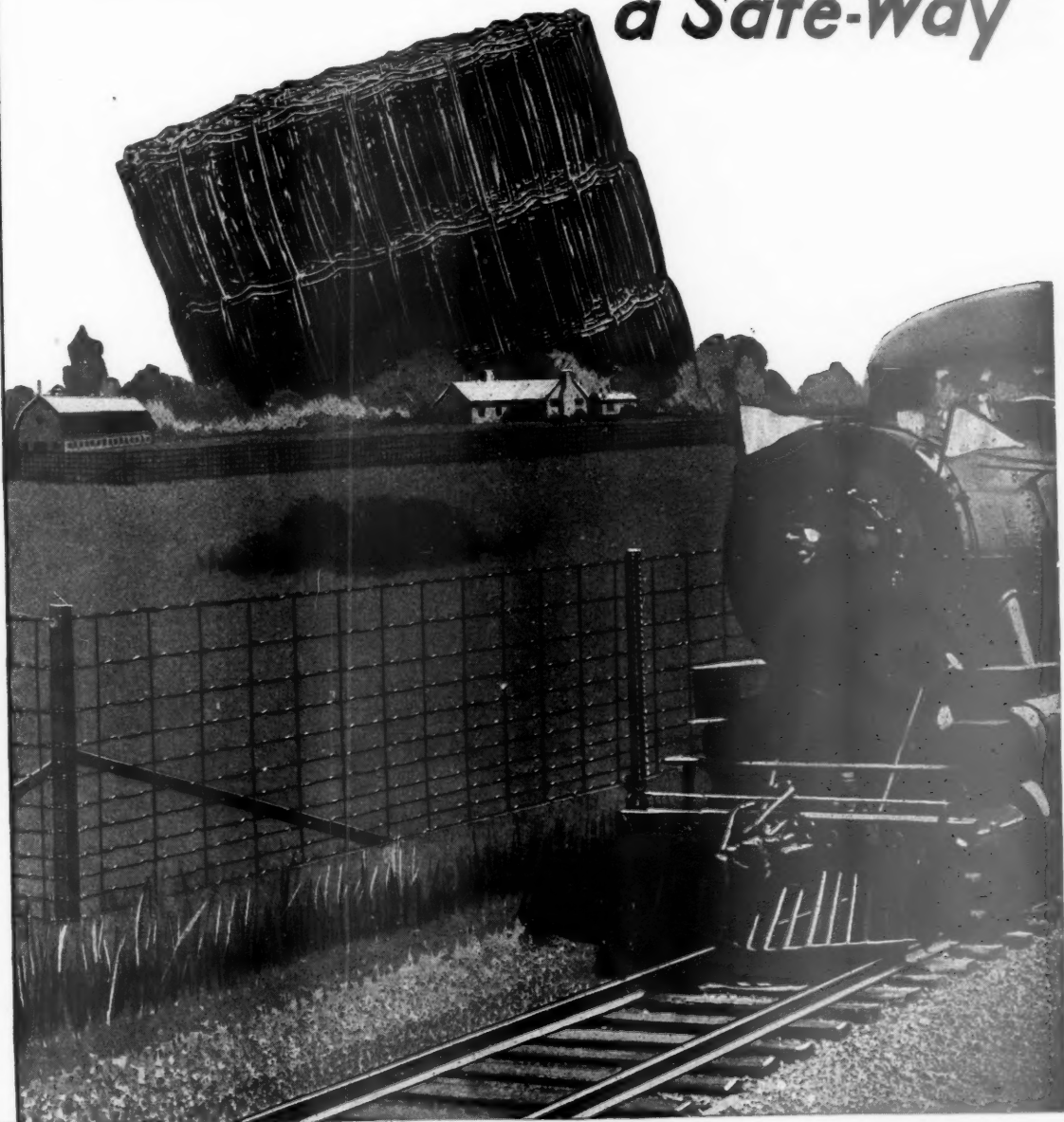




# AMERICAN Fence and BANNER STEEL POSTS

It is cheaper to put up a good fence than to pay stock claims. Likewise it is economy to buy adequate protection—proved protection—such as that offered by American Railroad Fence and Banner Steel Line Posts—the post of railroad rail construction. These products including National Expanding Anchor End and Corner Posts meet every specification recommended by the American Railway Engineering Association.

## *Make Your Right-of-Way - - a Safe-Way*



1831

MORE THAN  
100 YEARS  
OF PROGRESS  
IN  
WIRE MAKING

1932

### AMERICAN STEEL & WIRE COMPANY

208 South LaSalle Street, Chicago

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

And All Principal Cities

Pacific Coast Distributors, Columbia Steel Company, Russ Building, San Francisco

Export Distributors: United States Steel Products Company, New York

charge to surplus of \$385,054. The company has no bank or other loans and no bonded debt outstanding, and at the close of the year under review its surplus amounted to \$2,460,153, as compared with a surplus of \$4,262,579 at the end of 1930.

Current assets as of December 31, 1931, were \$6,926,033, against current liabilities of \$154,036, the excess of current assets over current liabilities being \$6,771,997. Included in the current assets were \$3,620,015 in cash and United States Government securities.

"Unfilled orders as of January 1, 1932, amounted to \$1,215,425," according to the report, which also says, "There has been no change in the purchasing policy of the railroads from that which has obtained during the past two years of slack business, and future locomotive orders are dependent upon the state of general business. Steps now in progress, however, having in view a betterment of conditions affecting the railroads, should be reflected ultimately in purchases of locomotives when increased traffic and deterioration of existing equipment warrant."

Joel S. Coffin retired as president of the company on December 10, 1931, and was succeeded by S. G. Allen, for many years chairman of the executive committee. That committee has been discontinued.

## OBITUARY

Joseph H. Turivas, president of Briggs & Turivas, Chicago, died on February 13.

## Construction

**ARKANSAS VALLEY INTERURBAN.**—The Interstate Commerce Commission has authorized this company to construct in the city of Hutchinson, Kans., an extension of its existing line, the extension to be approximately two miles long and to cost about \$75,000. In granting this application, the commission denied a request of the Hutchinson & Northern, a connecting electric line, to build a 3.1-mile extension in the same city.

**CHICAGO & NORTH WESTERN.**—A contract has been awarded to the Jutton-Kelly Company, Milwaukee, Wis., for the construction of a subway to carry State Trunk Highway No. 119 under the tracks of this company near Butler, Wis., at a cost of about \$25,000.

**MISSOURI PACIFIC.**—This company will lay 35 miles of new rails on its Texas lines at a cost of approximately \$400,000, the work to be rushed to completion as quickly as possible. The largest section of the project, 25 miles, is on the south end of the line between Houston and Brownsville. Another eight miles is on the north end of the International-Great Northern, while the remaining two miles are located on the San Antonio, Uvalde & Gulf.

**NORFOLK & WESTERN.**—This company has issued authority for the construction of a new wye track at Payne, Va., on its Winston-Salem line, and has also authorized the rearrangement of signals at Naugatuck, W. Va., following the abandonment of an interlocking plant at that point.

**NORTHERN PACIFIC.**—The Northern Pacific budget for 1932 calls for the expenditure of \$25,000,000 for equipment, maintenance, and improvements to property. A contract for approximately \$300,000 has been awarded the Pressed Steel Car Company for 150 gondola cars to be delivered in the spring, as reported in the *Railway Age* of January 16. Other purchases probably will bring capital expenditures for the year to around \$3,000,000 or \$4,000,000. Existing properties will be maintained with the replacement of ties and rails. While maintenance work will require less than the usual expenditure due to present light traffic, it is expected that the outlay will range around \$20,000,000. The company will add men to its forces in both the maintenance of way and maintenance of equipment departments as the season advances.

**PUBLIC SERVICE COMMISSION OF NEW YORK.**—The New York Public Service Commission has approved as not excessive the bid submitted by the Bates & Rogers Construction Company, Cleveland, Ohio, for the elimination of the grade crossing of the Erie Railroad located on the Warsaw-Gainesville state highway just south of Rock Glen station, Gainesville, N. Y. The commission has also approved a revised estimate of total cost, exclusive of land and damages, for the elimination of the Liberty street crossings of the Erie, Delaware, Lackawanna & Western and Delaware & Hudson in Binghamton, N. Y., for which the Hecker-Moon Company, Cleveland, is the general contractor, and has authorized the first two roads to employ company forces on certain work in connection with the project. Approval has also been given by the commission to plans and cost estimates for elimination of the Whitcomb and Oquaga crossings of the Erie, located, respectively, on the Friendship-Belmont state highway east of Belvidere station, Amity, N. Y., and on the McClure-Oquaga Lake road, three miles west of Deposit, Sanford, N. Y. Proceedings for the elimination of the Sinpatch crossing of the New York Central, two miles south of Wassaic, Amenia, N. Y., and of the Howells, Howells Center and Howells Lower crossings of the Erie, all located in Wallkill, N. Y., have been closed by the commission.

**READING.**—In connection with electrification of its Germantown and Chestnut Hill branch, this company has awarded to Hood & Gross, Inc., of Philadelphia, Pa., a contract for the construction of a new passenger station about 125 ft. south of Cheltenham avenue, Germantown (Philadelphia). A contract for the construction of a new freight house at the same point has been let to L. Lombardi & Bros., also of Philadelphia.

## Financial

**BOSTON & MAINE.—Loan.**—This company has applied to the Interstate Commerce Commission for authority to issue \$7,500,000 of 5 per cent bonds, to reimburse its treasury and to be pledged as collateral for a loan from the Reconstruction Finance Corporation.

**BURLINGTON-ROCK ISLAND.—Receivers' Certificates.**—The Interstate Commerce Commission has authorized this company to join with its receivers in extending to July 1, 1935, the maturity dates of \$1,492,470 of outstanding receivers' certificates, and to assume obligation and liability for these certificates.

**CANADIAN PACIFIC.—Changes Dividend Period.**—The board of directors of the Canadian Pacific, at a meeting held in Montreal last week, declared a dividend of  $1\frac{1}{4}$  per cent, amounting to  $31\frac{1}{4}$  cents per share on the ordinary capital stock of the company. This disbursement is for the last quarter of 1931 and is payable on April 1, 1932, to shareholders of record on March 1, 1932. The payment was declared from the reserve of surplus revenue in Canadian funds. Hereafter the payment of such dividends as may be declared will be half-yearly. The question of dividend for the first half of 1932 will be considered by the board at its August meeting.

**CHESAPEAKE & OHIO.—Bonds.**—This company has applied to the Interstate Commerce Commission for authority to pledge and repledge \$9,000,000 of refunding and improvement mortgage  $4\frac{1}{2}$  per cent bonds as collateral for short term notes at 6 per cent.

**DELAWARE, LACKAWANNA & WESTERN.—Notes.**—The Interstate Commerce Commission has authorized this company to issue and renew from time to time \$12,432,000 of promissory notes to be sold at par or discounted at not more than 6 per cent, and to pledge as collateral security all or any part of \$13,639,000 of New York, Lackawanna & Western first and refunding mortgage 5 per cent, series A bonds and \$10,000,000 of Morris & Essex  $4\frac{1}{2}$  per cent construction mortgage, series C bonds.

**DETROIT & TOLEDO SHORE LINE.—Securities.**—This company has applied to the Interstate Commerce Commission for authority to issue \$1,572,000 of common stock and \$1,000,000 of general and refunding mortgage bonds.

**L'ANGUILLE RIVER.—Abandonment.**—The Interstate Commerce Commission has authorized this company to abandon as to interstate and foreign commerce its entire line in and near Marianna, Ark., 1.3 miles.

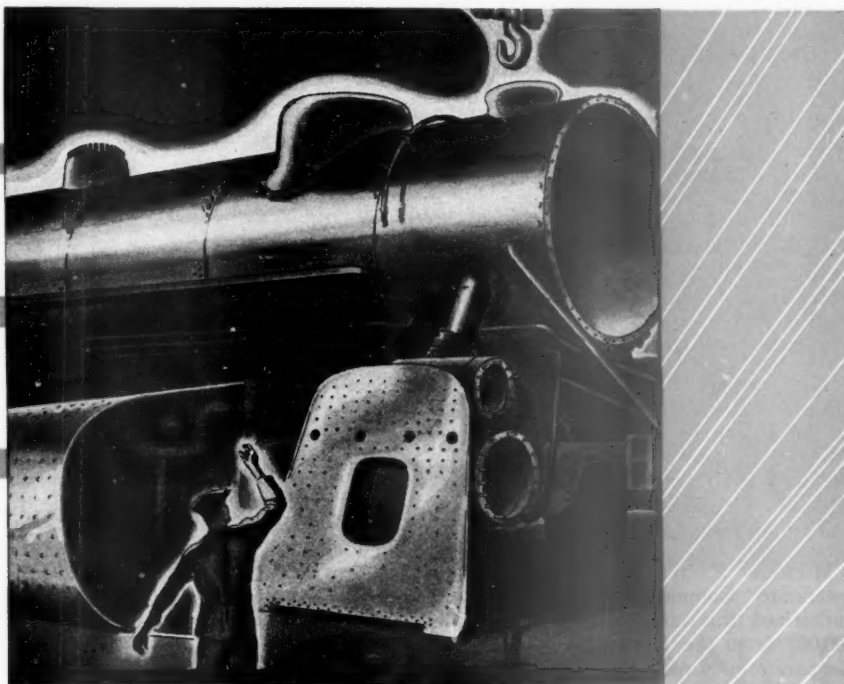
**LONG ISLAND.—Trackage Rights Into Pennsylvania Station.**—The Interstate Commerce Commission has authorized the continuation of operation by the Long Island under trackage rights into Pennsylvania station, New York, under modified terms. The Long Island is to pay

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# TONCAN IRON

**Is curing  
side sheet  
troubles**



Modern locomotives must generate steam faster. Fireboxes are necessarily larger and encounter more severe service.

Many a big locomotive has found that the old-time steel sheet cracks, fails and must be renewed in relatively short time.

Toncan Iron, however, has an exceptional resistance to fire-cracking and on scores of Super-Power locomotives is outlasting steel sheets many times.

Moreover, its alloy composition of refined iron, copper and molybdenum resists the preferential corrosion that weakens ordinary sheets.

For long life in the firebox, specify sheets of Toncan Iron.

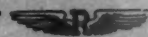


Toncan Iron Boiler Tubes, Pipe, Plates, Rivets, Staybolts, Tender Plates and Firebox Sheets • Sheets and Strip for special railroad purposes • Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Nitralloy • Agathon Iron for pins and bushings • Agathon Staybolt Iron • Culverts Climax Steel Staybolts • Upson Bolts and Nuts Track Material, Maney Guard Rail Assemblies Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets • Agathon Nickel Forging Steel (20-27 Carbon)

The Birdsboro Steel Foundry & Machine Company of Birdsboro, Penna., has manufactured and is prepared to supply under license, Toncan copper-molybdenum iron castings for locomotives.

## REPUBLIC STEEL CORPORATION

General Offices: Youngstown, Ohio



20 per cent of the operating expenses of the station and, for facilities other than the station, a wheelage ratio of total interest, taxes and operating charges is to be applied. The Long Island is to pay nothing toward interest and taxes on the station building and its service plant above ground level but is to pay interest at 5 per cent on the investment in facilities at track level on a basis of wheelage—operating expenses, maintenance and taxes to be apportioned on the same basis. The Long Island is to be credited with its proportionate share of rentals from news stands and other concessions. The Transit Commission of New York, the City of New York, and several associations of commuters opposed the new contract, which is to run for twenty years from January 1, 1931, in the belief that rental charged the Long Island would be increased thereunder.

**MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.**—*Loan*.—This company has applied to the Interstate Commerce Commission for authority to borrow \$2,990,173 from the Railroad Credit Corporation to meet interest obligations and to issue two-year notes therefor.

**MISSOURI PACIFIC.**—*K.F.C. Loan*.—The Interstate Commerce Commission has authorized this company to borrow \$1,500,000 from the Reconstruction Finance Corporation to meet obligations matured February 1. The company applied for a loan of \$23,250,000 to cover its requirements over a period of months, but the commission at this time authorized only the sum necessary to meet its immediate requirements.

*Bonds*.—The Interstate Commerce Commission has authorized the Missouri Pacific R.R. Corporation in Nebraska to issue \$1,409,000 of first mortgage 5 per cent, series A, bonds to be delivered to the corporate trustee of the first and refunding mortgage of the Missouri Pacific Railroad, in reimbursement for advances for capital expenditures.

**MOBILE & OHIO.**—*Notes*.—The Interstate Commerce Commission has authorized this company to issue \$3,000,000 of promissory notes to bear interest at not more than 6 per cent and to be sold at not less than par, the proceeds to be used to renew or discharge outstanding notes and to provide working capital.

**NASHVILLE TERMINAL.**—*Bonds*.—The Interstate Commerce Commission has authorized this company to extend from January 1, 1932, to January 1, 1935, the maturity date of \$1,000,000 of its first mortgage bonds, the interest rate to be increased from 5 per cent to 6 per cent.

**NEW YORK CENTRAL.**—*Abandonment of Fulton Chain*.—The Interstate Commerce Commission has authorized the Fulton Chain Railway to abandon its entire line extending from Thendora, N. Y., to Old Forge, 2.2 miles, and the New York Central has been authorized to abandon operation of the line.

**SOUTHERN.**—*Bonds*.—The Interstate Commerce Commission has authorized this company to issue \$42,769,000 of development and general mortgage 4 per

cent bonds to be pledged and replighted until the end of 1933 as collateral security for notes which may be issued under Section 20a (9) of the Interstate Commerce Act.

**SOUTHERN PACIFIC.**—*Dividend Omitted*.—At a meeting of the board of directors of this company held on February 18, no action was taken upon the quarterly dividend usually payable on April 1. It was decided in view of the continued decline in the revenues to postpone consideration of further dividend declaration until the regular meeting of the board in May, by which time it is hoped that a better understanding of the trend of traffic for the remainder of the year can be reached.

**WABASH.**—*R.F.C. Loan*.—The Interstate Commerce Commission has authorized this company to borrow \$7,173,800 from the Reconstruction Finance Corporation, at an interest rate to be fixed by the corporation, for a term of three years, to meet interest on underlying bonds, to meet interest and principal maturities on equipment trust obligations, to provide for necessary improvements, and to pay preferential claims for labor, material and supplies. Receivers had asked for a loan of \$18,500,000, but the Commission authorized only sufficient to meet immediate requirements.

**WESTERN PACIFIC.**—*Loans*.—This company has applied to the Interstate Commerce Commission for authority to issue and pledge \$15,000,000 of general and refunding mortgage 5 per cent bonds, to be pledged as collateral for loans from the Reconstruction Finance Corporation and the Railroad Credit Corporation, and also for authority to issue \$5,000,000 of three-year 5 per cent notes in exchange for a like amount of debentures. The company applied on February 6 to the Finance Corporation for a loan to aid in temporary financing amounting to \$799,000 and also to the Credit Corporation for a loan of \$1,303,000 to meet fixed interest obligations.

### Dividends Declared

**Bangor & Aroostook.**—Common, 50c, quarterly; Preferred, \$1.75, quarterly; both payable April 1 to holders of record February 29.

**Canadian Pacific.**—Ordinary, 31 $\frac{3}{4}$ c, quarterly, (payable in Canadian funds—in future dividends will be declared semi-annually); Preference, 2 per cent, semi-annually (payable in sterling), both payable April 1 to holders of record March 1.

**Chesapeake & Ohio.**—Common, 62 $\frac{1}{2}$ c, quarterly, payable April 1 to holders of record March 8; Preferred, \$3.25, semi-annually, payable July 1 to holders of record June 8.

**Chesapeake Corporation.**—75c, quarterly, payable April 1 to holders of record March 8.

**Illinois Central.**—Dividend omitted on Preferred stock.

**Norfolk & Western.**—Common, 2 $\frac{1}{2}$  per cent, quarterly, payable March 19 to holders of record February 29.

**North Pennsylvania (Leased Line of Reading Co.).**—\$1.00, quarterly, payable February 25 to holders of record February 15.

**Texas & Pacific.**—Preferred, 1 $\frac{1}{4}$  per cent, quarterly, payable March 31 to holders of record March 15.

**Union Pacific.**—Common, 2 $\frac{1}{2}$  per cent, quarterly; Preferred, 2 per cent; both payable April 1 to holders of record March 1.

### Average Prices of Stocks and of Bonds

	Feb. 16	Last week	Last year
Average price of 20 representative railway stocks..	35.65	28.83	84.12
Average price of 20 representative railway bonds..	69.07	67.21	94.06

## Railway Officers

### EXECUTIVE

**Warren E. Fuller**, assistant to the executive vice-president of the Chicago, Burlington & Quincy, has been appointed assistant to the vice-president in charge of traffic, with headquarters as before at Chicago.

### OPERATING

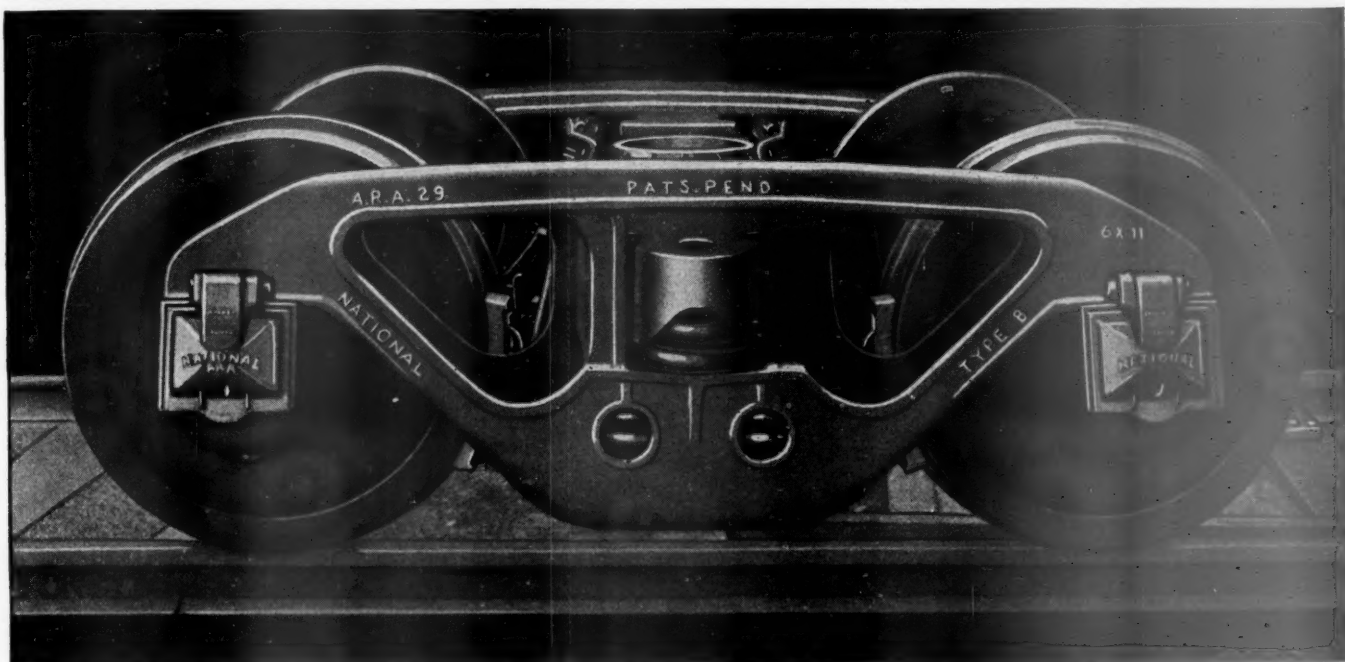
**P. Slater**, special representative in the office of the assistant to general manager of the Southern Pacific, Pacific Lines, has been promoted to assistant to the general manager, with headquarters as before at San Francisco, Cal., succeeding **W. B. Kirkland**, who has been promoted to superintendent of transportation, as noted in the *Railway Age* for February 6. **E. F. Nassoly** has been appointed assistant superintendent of the Sacramento division of this road, with headquarters at Sacramento, Cal., where he succeeds **W. M. Stillman**, deceased.

The Baltimore & Ohio has divided into two divisions its new Buffalo-Rochester district, which latter includes the lines of the Buffalo, Rochester & Pittsburgh and the Buffalo & Susquehanna now operated by the B. & O. under an operating agreement. The new divisions are the DuBois division, with headquarters at Punxsutawney, Pa., including the main line and branches from Butler to DuBois, Pa., the line from Butler to Mt. Jewett, Pa., and the main line and branches from DuBois, Pa., to Addison and Wellsville, N. Y.; and the Niagara division, with headquarters at Rochester, N. Y., which embraces the main line and branches from DuBois, Pa., to Rochester and Buffalo, N. Y.

**Albert Wilcox**, assistant to the general manager of the Western region of the Canadian National, with headquarters at Winnipeg, Man., has retired after 50 years of service with various railroads in Canada. The position of assistant to the general manager of the Western region has been abolished. Mr. Wilcox was born on January 2, 1865, at Kincardine, Ont., and after a public school education entered railway service in 1881, as operator and freight and ticket clerk for the Grey & Bruce Railway (now a part of the Canadian Pacific), at Toronto, Ont. From 1883 until 1903, Mr. Wilcox was advanced through the positions of agent and operator, dispatcher and chief dispatcher on the Canadian Pacific, and in the latter year he was appointed chief dispatcher on the Canadian Northern (now part of the Canadian National), at Port Arthur, Ont. In 1904, he was promoted to superintendent, in which position he served on various divisions until November, 1911, when he was made as-



## TRUCKS *that Speed Train Operation*



## SUPERIOR TRUCK PERFORMANCE WITHOUT EXTRA COST

**N**ATIONAL Type B trucks are designed for modern operating needs. ♦♦ They are lighter and stronger and have increased spring capacity which helps to prevent damage to lading. They permit quick wheel change which speeds up maintenance work and reduces its cost. ♦♦ For modern operating needs requiring economies in time and labor, National Type B trucks meet all requirements... without any premium in cost. Details gladly furnished on request.

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General Offices: CLEVELAND, OHIO

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M17

**National Draft Gear**  
Another contribution by National to profitable freight operation. This gear stands first in the combination of capacity, sturdiness and endurance.

# NATIONAL

TYPE  B

## TRUCKS

assistant general superintendent at Winnipeg. In December of the same year he was further advanced to general superintendent, with headquarters at Edmonton, Alta., being transferred to the Central district in January, 1913. In 1924, he was promoted to general superintendent of transportation of the system, which position he held until 1928, when he was appointed assistant to the general manager of the Western region, with headquarters at Winnipeg.

**Edgar E. Ernest**, recently appointed superintendent of passenger transportation of the Pennsylvania, with headquarters at Pittsburgh, Pa., was born on January 18, 1891, at Altoona, Pa. He was educated in the public schools and at Altoona Business College, entering the service of the Pennsylvania in July, 1907, as yard messenger. He later be-



E. E. Ernest

came yard clerk and served in various offices at the Altoona yard until 1912, when he was transferred to the chief train dispatcher's office. He was appointed assistant yardmaster in 1916, and served in that capacity both at Altoona and Hollidaysburg. Two years later he was promoted to yardmaster, which position he held until May, 1920, when he was appointed assistant freight trainmaster at Mifflin, Pa. He later served in the same capacity at Harrisburg and Hollidaysburg and in June, 1924, he was promoted to trainmaster of the Cumberland Valley division. Two years later he was transferred to the Maryland division as freight trainmaster, and in July, 1928, he was appointed superintendent of the Buffalo division, the position he held until his recent appointment.

**J. L. Kendall**, superintendent of the Eastern division of the Missouri Pacific, with headquarters at Jefferson City, Mo., has been promoted to general superintendent of transportation, with headquarters at St. Louis, Mo., succeeding **D. O. Ouellet**, who has been elected president and general manager of the American Refrigerator Transit Company, which is owned jointly by the Missouri Pacific and the Wabash. Mr. Ouellet, whose headquarters are also at St. Louis, succeeds **Herman B. Kooser**,

deceased. **M. L. Hayes**, assistant general superintendent of transportation, at St. Louis, has been promoted to the newly-created position of superintendent of transportation at that point. **C. C. Chapman**, superintendent of the Missouri division, with headquarters at Poplar Bluffs, Mo., has been transferred to the Eastern division, at Jefferson City, to succeed Mr. Kendall. **C. F. Dougherty**, superintendent with jurisdiction over the Little Rock and Louisiana divisions, with headquarters at Monroe, La., has been transferred to Poplar Bluff, to succeed Mr. Chapman. **H. E. Roll**, assistant superintendent of the Little Rock division, at McGehee, Ark., has been promoted to superintendent at Monroe, to succeed Mr. Dougherty. **J. F. Bassett**, trainmaster, with headquarters at Van Buren, Ark., has been promoted to assistant superintendent at McGehee, to replace Mr. Roll. **B. C. Murphy**, trainmaster, with headquarters at Monroe, has been transferred to Van Buren, to succeed Mr. Bassett. These appointments became effective on February 15.

## TRAFFIC

**H. C. Mitchell**, assistant general freight agent of the Virginian, has been appointed general freight agent in charge of solicitation, with headquarters at Norfolk, Va.

**A. W. Foellger**, chief assistant general passenger agent on the Michigan Central at Chicago, has been promoted to general passenger agent at the same point, a newly-created position. The position of chief assistant general passenger agent has been abolished.

**C. E. Carlton**, assistant general freight agent for the Missouri Pacific at St. Louis, Mo., has been promoted to the newly-created position of perishable traffic manager for the Missouri Pacific Lines, with the same headquarters. **L. B. Nicholson**, general agent at Cleveland, has been promoted to assistant general freight agent at St. Louis, to succeed Mr. Carlton. These appointments became effective on February 15.

**Columbus Haile, Jr.**, general freight agent on the Missouri-Kansas-Texas, at St. Louis, Mo., and **S. L. Altschuler**, special representative, have been appointed to the newly-created positions of executive general agent at Houston, Tex., and Kansas City, Mo., respectively. Mr. Altschuler will assume the duties of Major **J. F. Hickey**, executive representative, who has been sent to St. Louis with the same title but with system jurisdiction.

Re-arrangements in the Baltimore & Ohio traffic department brought about by the recent changes under which the lines of the Buffalo, Rochester & Pittsburgh and the Buffalo & Susquehanna became the new Buffalo-Rochester district of the B. & O. are as follows: **R. W. Anderson**, coal traffic manager of the B. R. & P., has been appointed coal freight agent at Pittsburgh, Pa. **H. E.**

**Huntington**, assistant traffic manager of the B. R. & P., has been appointed freight traffic manager; **E. D. Davis**, freight traffic manager of the B. R. & P., has been appointed assistant freight traffic manager; **E. A. Niel**, traffic manager of the B. R. & P., has been appointed assistant to freight traffic manager, and **W. H. Francis** will continue as general freight agent. The headquarters of all these officers will be located at Rochester, N. Y. **W. J. Sheridan** will continue in the capacity of assistant general freight agent at Buffalo, N. Y. **William Pugh** has been appointed industrial agent at Rochester.

**John L. Bladon**, general passenger agent of the Norfolk & Western, who has been appointed passenger traffic manager, succeeding **W. C. Saunders**, retired, first entered the service of the



John L. Bladon

Norfolk & Western on January 17, 1889, as a clerk in the office of the auditor of receipts. Mr. Bladon was then 16 years of age, having been born in Monmouthshire, England on February 26, 1873. On March 1, 1893, he was transferred from the auditor's office to the passenger department, and, in 1898, he was made chief rate clerk. He was advanced to division passenger agent, with offices at Cincinnati, Ohio, on August 1, 1910. Mr. Bladon was again promoted on June 15, 1922, being made assistant general passenger agent, with headquarters still in Cincinnati. On March 1, 1926, he became general passenger agent, with headquarters at Roanoke, Va., and served in that capacity until his recent promotion.

Mr. Saunders was born in Richmond, Va., on January 8, 1862. After graduating from high school in Richmond, Va., in 1881, he entered upon his railroad career as a clerk in the passenger department of the Associated Railways of Virginia and the Carolinas. On November 2, 1882, he became connected with the N. & W. as passenger clerk at Lynchburg, Va., where he remained until August of the following year, when the general offices of the railroad were moved from Lynchburg to Roanoke. Three years after moving to Roanoke, in March, 1886, Mr. Saunders was promoted to chief clerk in the passenger



# Maximum Locomotive Efficiency

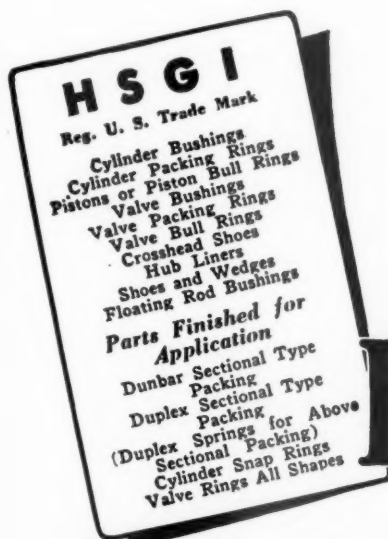


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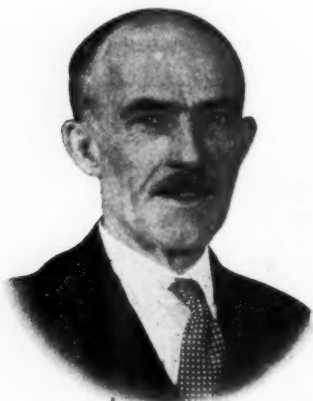
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# HUNT-SPILLER GUN IRON

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department. On January 1, 1912, he was appointed assistant general passenger agent, and, less than a year thereafter, was further advanced to general



W. C. Saunders

passenger agent. Mr. Saunders became passenger traffic manager on March 1, 1926, which position he held until his retirement.

## ENGINEERING AND SIGNALING

**John E. Bebb**, assistant bridge engineer of the Michigan Central, has been promoted to bridge engineer, with headquarters as before at Detroit, Mich., to succeed **Gabriel C. Tuthill**, who has retired after 40 years of continuous service with this company. **Hans Isben**, consulting bridge engineer for this road, at Detroit, who was bridge engineer from 1905 to 1916, has also retired, having served the Michigan Central for more than 41 years. These changes became effective on February 1.

**Maro Johnson**, who has been appointed principal assistant engineer of the Illinois Central, to succeed **Arthur L. Davis**, retired, has served the engineer-



Maro Johnson

ing department of that road for nearly 34 years. He was born at Iowa City, Iowa, in 1877, and graduated from the University of Iowa in 1898, with a de-

gree in civil engineering. He entered railway service in October, 1898, as a masonry inspector on second track work on the Illinois Central, and after holding various positions in the bridge department he was sent to Indianapolis, Ind., in March, 1905, as resident engineer on the construction of the Indianapolis Southern (part of the Illinois Central). Two years later Mr. Johnson was appointed resident engineer on track elevation work at Chicago, being promoted to assistant engineer of bridges in 1912, and then to engineer of bridges and buildings in 1913. In 1915 he served as resident engineer in charge of the design and construction of the St. Charles Air Line bridge over the Chicago river at Chicago. Mr. Johnson was assigned to the chief engineer's office in 1920 as an assistant engineer, where he handled special assignments, including that of representative in the planning of the Chicago terminal improvement work, various grade separation projects, and the passenger terminal at New Orleans, La. His appointment as principal assistant engineer at Chicago became effective January 1.

## MECHANICAL

**H. L. Needham**, general master mechanic of the Northern lines of the Illinois Central, with headquarters at Chicago, has been appointed master mechanic, with headquarters at the same point, to succeed **F. P. Nash**, who has been transferred to Clinton, Ill., to fill a position that has been vacant for some time. The position of general master mechanic at Chicago has been abolished.

## PURCHASES AND STORES

**S. E. Keillor**, district storekeeper on the Canadian National, with headquarters at Winnipeg, Man., has been promoted to assistant general storekeeper of the Central region, with headquarters at Toronto, Ont., to succeed **W. B. Gordon**, who has been appointed superintendent of reclamation of the system, with headquarters at Montreal, Que., to relieve **E. J. McVeigh**, who has retired. **E. A. Russell**, storekeeper at Transcona, Man., has been promoted to district storekeeper, at Saskatoon, Sask., to replace **J. S. Park**, who has been transferred to Edmonton, Alta. Mr. Park succeeds **C. S. Argyle**, who has been transferred to Winnipeg, to succeed Mr. Keillor.

## OBITUARY

**Robert Trimble**, formerly assistant chief engineer of the Pennsylvania System, died on February 6 of pneumonia at Glen Osborne, Pa., a suburb of Pittsburgh. Mr. Trimble was born at Butler, Pa., and was educated at the Western University of Pennsylvania, now the University of Pittsburgh. He entered railway service in 1875, as a chairman on the engineering corps of the Pennsylvania, and advanced through various positions to that of principal assistant

engineer. In 1903, Mr. Trimble was promoted to chief engineer maintenance of way of the lines west of Pittsburgh, Northwest System, which position he held until July 2, 1918, when he was appointed chief engineer of construction of the same lines. He was further advanced to assistant chief engineer of the Pennsylvania System, with direct supervision over the lines west of Pittsburgh, on March 1, 1920, and was appointed chief engineer of the Pennsylvania Company and of the Pittsburgh, Cincinnati, Chicago & St. Louis (part of the Pennsylvania) in July, 1926. He was serving in the latter capacity at the time of his retirement on December 31, 1926.

**George P. Turner**, valuation officer of the Union Pacific System, with headquarters at Omaha, Neb., who died on January 7, as noted in the *Railway Age* for January 23, had been in railway engineering and valuation work for 30 years. He was born on December 18, 1879, at Rudd, Iowa, and graduated from Cornell College, Mt. Vernon,



George P. Turner

Iowa, in 1903. Prior to graduation, he served as a rodman, instrumentman and inspector of construction work on the Minneapolis & St. Louis. In May, 1903, immediately after graduating from school, he entered the service of the Illinois Central as a resident engineer, and served in this position and as assistant engineer until July, 1908, when he left railway service to become connected with a railway contracting firm at Louisville, Ky., as engineer and assistant superintendent on a project of the Cleveland, Cincinnati, Chicago & St. Louis, at Indianapolis, Ind. In May, 1909, Mr. Turner entered the service of the Union Pacific as an assistant engineer, being assigned to valuation work on January 1, 1914. In June, 1915, he was appointed assistant to the special engineer of the Union Pacific System and the Southern Pacific Company on valuation work. When the valuation department of the Union Pacific Railroad was organized on January 1, 1917, Mr. Turner was made valuation engineer, and on October 15, 1918, he was promoted to valuation officer of the Union Pacific System, which position he held until his death.